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American Anthropologist

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THE INFLUENCE OF THE HORSE IN THE DEVELOPMENT OF PLAINS CULTURE

BY CLARK WISSLER

ONE of the important problems pertaining to the Indians of the Plains is the relation of the European horse to their culture. The initial difficulty lies in our inability to determine the precise dates at which the successive tribes came into its possession.

Exploration in the Plains proceeded gradually from the east and south, chiefly during the eighteenth century. Certain Spanish accounts give us some data for the seventeenth and even the sixteenth century, but only for the extreme southern border. The early literature for the Missouri and Saskatchewan valleys is readily accessible, but an exhaustive search in the Spanish and French colonial archives for Louisiana and New Mexico will be necessary before a definite historical statement of the introduction of the horse can be made. However, a general résumé of the literature at hand will give approximate dates at which horses are mentioned for many tribes.

The great Spanish expeditions to explore the southern parts of the United States were well equipped with horses and even cattle and hogs. The adventurers were cavaliers; hence, horses were a necessity. De Soto carried some of his horses across the Mississippi in 1541. At about the same time Coronado reached the present bounds of Oklahoma from Santa Fe. Oñate is believed to have visited the Pawnee and Kansas, 1599–1601, and Peñalosa con-

ducted an expedition to the Mississippi in 1662. From Coronado's time on there was a growing trade with the Indians of the Gulf coast, and trade to the interior from Santa Fe as a base began about 1600. The pueblo village of Taos soon became the trade center for the Plains Indians. This trade seems to have reached its maximum about 1630. Doubtless the archives of Mexico and Spain contain data on the trade of this period, but nothing definite has so far found its way into literature. It is known, however, that the Indians of the Plains and especially the Pawnee were so troublesome in their plundering raids for horses that a post was established in Kansas about 1704 and an unsuccessful expedition undertaken by Villazur in 1720. Yet, in 1719 du Tisné, a Frenchman, visited two Pawnee villages in Oklahoma where he counted three hundred horses. As early as 1682 Henri de Tonty found horse-using Indians on the lower Missouri.[1] La Salle also states (1682) that the Gattacka (Kiowa-Apache) and Manrhoat (Kiowa?) had many horses.[2] In fact they found horses in many places. This is about the earliest date we can hope to find for the Missouri, but if horses were there at that time, it is most certain that the Pawnee were well provided with them. It seems, therefore, safe to conclude that some time during the interval 1600–1682, at least, the Caddoan tribes, the Tonkawa, and the Comanche, as well as the Kiowa, became fully equipped with horses. The Metontonta (Oto) came to see La Salle and brought a horse's hoof, stating that the Spanish made war upon them (1680). From the statements by Hennepin we infer that the Oto did not use horses at that time.

It is thus clear that the Indians below the Platte and lower Missouri were quite well supplied with horses by 1682, and there is no reason why many of them should not have had horses as early as 1600. Presumably those to get them first would be the Ute, Comanche, Apache, Kiowa, and the Caddo. As we move northward our historical data become a little more definite.

The sons of La Verendrye made a journey to the Rocky mountains from the Mandan in 1742–43. They encountered horse

[1] See Kansas Historical Collections, vol. IX, p. 241.

[2] Mooney in Seventeenth Annual Report, Bureau of American Ethnology, p. 160.

Indians, also mules and asses, and on their return to Canada mention the horses of their Assiniboine companions.[1] On this journey to the Rocky mountains they seem to have passed down west of the Black hills and to have reached the mountains in Wyoming or Colorado and on the return trip to have struck the Missouri in Nebraska or South Dakota. They were in fear of the Snake Indians. So far we have not been able to fully identify the tribal names of these explorers, but Beaux Hommes seems likely to be Crow, and Gens de l' Arc to be Cheyenne. Their "Le Grand Chef" was evidently the chief of the Pawnee, and the Chevaux, the Comanche. They fell in with the Prairie Sioux on the return trip. On one point they are definite: that horses were in use all along their route after they left the Mandan country.

Next we turn to the journal of La Verendrye's Mandan discoveries, 1738–39. He set out from a camp of Cree on the Assiniboine river and made the journey overland with a body of the Assiniboine. It is clear that the whole party were afoot, for "the women and dogs carry all the baggage, the men are burdened only with their arms; they make the dogs even carry wood to make the fires, being often obliged to encamp in the open prairie, from which the clumps of wood may be at a great distance."[2] No mention of seeing horses among the Mandan and the adjoining villages is made. On the other hand, we are told that the Indians gave him to understand "that the Pananas and Pananis had horses like the whites,"[3] living to the south of them. One of his Assiniboine companions narrated an engagement with horsemen in armor while his party was in a raid to the Mississippi. Yet, in 1741, when the sons of La Verendrye set out toward the southwest, their statements seem to imply the possession of horses by the Mandan and the neighboring villages.

A little later (1751) Saint Pierre states that he saw horses and saddles which the Indians obtained by trade from the west,[4] and

[1] Découvertes et établissements des Français dans l'ouest et dans le sud de l'Amérique septentrionale (1614–1754), recueillis et publiés par Pierre Margry, part 6, pp. 589–611.

[2] Canadian Archives, 1889, 13.

[3] Ibid., 21.

[4] Ibid., 1886, vol. 26, p. clxiii.

notes a report from Fort Lajonquière in the Blackfoot country that the natives there traded for horses and saddles to the westward. This is the earliest suggestion of horses among the Blackfoot peoples.

We may now direct our search to the Hudson Bay posts of the north. Here we can refer directly to the journal of Anthony Hendry[1] who in 1754 set out from York Fort in company with a returning party of Assiniboine to visit the Blackfoot tribes of the west, who to his seeming surprise were well supplied with horses. However, when he returned, his superiors at York regarded such a statement as the grossest of fabrications and in consequence gave little weight to his report. This would seem to indicate that the traders of Hudson bay had never heard of horse Indians. On the other hand, it is clear that the Assiniboine who had regularly visited York Fort for some years could not have been ignorant of the fact, for Hendry states:

"17. Saturday. . . . They are a tribe of the Asinepoet Nation: and like them use the Horses for carrying the baggage and not to ride on." (This restricted use of the horse is very significant.) This confirms the report of horses in the Blackfoot country in 1751.

We have now accounted for practically all the tribes west of the Missouri and around the headwaters of the Saskatchewan. To the east in contact with the Assiniboine were the Plains Cree and Plains Ojibwa. In 1776 Henry states that they had herds of horses like the Assiniboine.[2] In 1772 Cocking met Cree far to the west, but fails to state that they had horses, though their possession is implied. La Verendrye (1738) makes a curious remark concerning an Indian near the Red river: "as he had his vehicle [voiture] with him," etc. This may signify horses, but we cannot be sure.

For the Dakota and other tribes above the mouth of the Missouri we seem to have negative evidence. As early as 1662 Radisson met a division of the Eastern Dakota in Wisconsin, and from his own quaint account of the manner of transporting baggage it is

[1] Proceedings and Transactions of the Royal Society of Canada, Third series, vol. 1, 1907, p. 307, and vol. 2, p. 89.

[2] Alexander Henry, Travels and Adventures, etc., New York, 1809, pp. 289, 299.

clear that there were no horses there. These Indians were, it is true, not a typical Plains people, but Radisson tells of journeys to the Mississippi and to the vicinity of the Mille Lacs where he met other Indians of their kind. Nowhere have we noticed any implication that horses were known. From 1665 to 1699 Nicolas Perrot was in frequent contact with the Siouan tribes, but we find in his account no suggestion of horses. Le Sieur penetrated the country of the typical Plains Dakota in 1700, and, though he goes into much detail, we find no hint of horses being in the vicinity. Before his day neither Hennepin nor Du Luth mentions them for the Sioux country.

Then we come to the journal of Peter Pond, 1740–45, where we are told that the Yankton division of the Dakota had horses in abundance:

"Thay Have a Grate Number of Horses and Dogs which Carres there Bageag when they Move from Plase to Plase. . . . Thay Run down the Buffelow with thare Horses and Kill as Much Meat as thay Please. In Order to have thare Horseis Long Winded thay Slit thair Noses up to the Grissel of thare head which Make them Breath Verey freely. I Have Sean them Run with those of Natrall Nostrals and Cum in Apearantley Not the Least Out of Breath."[1]

Turning again to the Mandan we have no literature until 1804 when Lewis and Clark wintered among them, at which date all the Indians of the Missouri were well supplied with horses; together with the Arikara and Hidatsa they were trading horses and mules to the Assiniboine and Teton Dakota. However, in the journal of J. McDonnell (1793) we are told that at the Missouri the natives used horses to hunt buffalo.

The result of our survey is then quite definite. Horses were numerous among the Blackfoot as early as 1751, and they were used by the Assiniboine about the same date. They had not been acquired by the Mandan in 1738, but were among their immediate neighbors to the south. They are first definitely mentioned for the Teton Dakota in 1742, and for the Yankton at about the same date. The Iowa seem to have had some horses in 1724.[2]

[1] Collections of the State Historical Society of Wisconsin, vol. XVIII, p. 353.

[2] "In 1719, Du Tisne visited two villages of the Pawnees situated on a small stream some six leagues west of the Arkansas, probably in what is now Oklahoma. In

Tribe	First Visit	First Mention of Horses
Arapaho	1804 Lewis and Clark	——
Arikara	1738 La Verendrye	1738 La Verendrye
Assiniboine	1658 Jesuits (?)	1742 La Verendrye, Jr.
Blackfoot	1751 Saint Pierre	1751 Saint Pierre
Cheyenne	1680 La Salle	——
Comanche	1714 La Harpe	1714 La Harpe
Crow	1742 La Verendrye, Jr.	1742 La Verendrye, Jr.
Gros Ventre	1784 Umfreville	1784 Umfreville
Hidatsa	1738 La Verendrye	1741 La Verendrye, Jr.
Kansas	1601 Oñate	1755
Kiowa	1682 La Salle	1682 La Salle
Iowa	1676 Zenobius	1724 Mead
Mandan	1738 La Verendrye	1742 La Verendrye
Missouri	1682 Tonty	1682 Tonty
Omaha	1761 (?)	——
Osage	1694 Gravier	1719 Du Tisné
Oto	1680 La Salle	——
Pawnee	1541 Coronado (?)	1704 Dunbar
Plains Cree	——	1738 La Verendrye
Ponca	1804 Lewis and Clark	——
Santee	1662 Radisson	1740 Peter Pond
Sarsi	1784 Umfreville	1784 Umfreville
Snake	1742 La Verendrye	1742 La Verendrye, Jr.
Teton	1680 La Salle	1742 La Verendrye, Jr.
Wichita	1541 Coronado	——

If these dates for first mention of the horse are tabulated or plotted on a map, we have a progressive series northward, beginning with 1682 and culminating on the Saskatchewan in 1751. In every case, however, we must assume an earlier date for its introduction. There is no good reason why the Pawnee should not have had horses in 1650 or even in 1630, since they were available in the

these villages he found 300 horses 'which they value very highly, and could not do without.' He procured from them two horses and a mule marked with a Spanish brand. Five years later Bourgmont endeavored to secure by trade with the Kansas a sufficient number of horses for his journey to the Paducas [Comanche] in western Kansas. They were unable to supply him with more than seven, and one of these was stolen by an Iowa Indian, who eloped thereon with a Kansas maiden to his own people. The Paducas, who seemed to be on good terms with the Spaniards, said they obtained their horses from them by barter, and that they had not yet been able to raise any colts."—Transactions of the Kansas State Historical Society, vol. x, 1907–1908, p. 107, footnote.

Spanish and Pueblo settlements of New Mexico. On the other hand, the progressive nature of our data from southeast to northwest may be entirely due to the gradual extension of exploration, and so have no other significance. For example, it is only in case of the Assiniboine, Cree, Eastern Dakota, Mandan, and the tribes in Iowa, Wisconsin, and parts of Illinois that we have evidence of their existence without horses, and even in these cases we can only say that explorers did not mention them.

In this connection we may give brief consideration to the use of horses east of the Mississippi. From the very first, the Spaniards were great importers of horses and other domestic animals. In this respect they stand in contrast to the French of Canada where the first horse (just one) was imported in 1647, the first cargo in 1665.[1] The English colonists imported horses moderately, except in Virginia, where the cavalier element, as among the Spaniards, brought in the horse, and where in 1669 wild horses became a pest. The first horses imported by the New England colonies came in 1629. Horses spread among the Indians of the Atlantic slope, but it was only in the south that they were numerous. According to Adair the Cherokee and other southern tribes were good horsemen. While these Indians could have secured their stock from Virginia, it is much more probable that they first came from Spanish settlements on the Gulf and even from the tribes west of the Mississippi. According to Swanton, Du Pratz and others speak of horses as numerous in the south and note that they seem a different variety from the European horse, which suggests the Indian horse of the west.

Adair gives us a good description of the riding gear of the Choctaw and other southern Indians. They had the rope for a bridle, made saddles with wood and green buffalo hide, and mounted from the "off-side," in all of which he recognizes the Spanish type and which reminds us of the Plains.[2] Even the saddles made by the Iroquois of New York are of this same western Indian type. All this strongly suggests that the dominant traits of horse culture among all the south Atlantic Indians came from across the Missis-

[1] Charlevoix, Shea edition, vol. 3, p. 83.

[2] Adair, James, History of the American Indians, London, 1775, p. 426.

sippi, or at least indirectly from the same source as the western culture. The ultimate source was most likely the Spaniards. The French are a negligible factor because they settled at the mouth of the Mississippi after the horse had reached the Missouri. Even the English settlements in Virginia scarcely reached a point where they could supply horses to the Indians of the east before horses are reported in the west. It seems therefore clear that the Spaniards must be credited with the introduction of the horse to the Indians of the Plains and the lower Mississippi both east and west; the greater number of horses must have come from their more numerous settlements in the Southwest and Mexico.[1]

As to the Indians north of the Ohio we have very little data, but the Wyandot are said to have first secured horses at Braddock's defeat (1755).[2] The Kansas also returned with horses during the same war.[3] From Tanner's narrative it appears that the Indians around Detroit in 1775 made some use of horses. In a treaty made with the Sauk and Fox in 1804 it was stipulated that they return all stolen horses.[4] From what information has come to hand it appears that before the French and Indian War horses were scarcely

[1] The first accounts we find for English exploration in the interior of the Southern States have been made available by Alvord and Bidgood (First Explorations of the Trans-Allegheny Region, Cleveland, 1912). The period covered is 1650–1674 and the territory the Appalachian region. No mention of horses in the hands of Indians is made, but the explorers and traders used horses and often left them with the Indians for safekeeping. The Cherokee towns on the Virginia frontier were usually the base of operations. Thus, it is certain that these Indians had an opportunity to acquire horses during this period; but they had had some contact with Spanish traders for almost a century. In Adair's day chickens and hogs were abundant among the Indians, but as early as 1699 the French found chickens abundant in the Houma villages. Needham and Arthur found wild hogs abundant in Georgia in 1674. When the French settled Louisiana they found peaches and figs under cultivation. These could scarcely have come from the English settlements of the Atlantic. Smith (Anthropological Papers, American Museum of Natural History, vol. 6, p. 208) reports impressions of peach stones on pottery from a Kentucky site in which no traces of trade articles were found. At a very early date the Iroquois were raising peaches and apples. We have here a subject for investigation, but it is clear that the Southern Indians quickly took up certain traits brought in by the Spaniards whenever these happened to fit into their original culture.

[2] Transactions of the Kansas State Historical Society, vol. IX, p. 79.

[3] Ibid., vol. X, p. 331.

[4] Ibid., vol. XI, p. 334.

used in the Ohio valley and the Great Lakes country. Yet at this date they were in general use among the Indians of the South Atlantic and Gulf states and among all the tribes west of the Mississippi from north to south. We have previously noted the relatively late introduction of the horse to the tribes along the upper Mississippi.

The phenomenon we have is now plain: Indian horse culture spread rapidly from the Spanish settlements of the Southwest and Mexico upward between the Rocky mountains and the Mississippi river, and thence northward between the Missouri and the mountains, to the west of the Black hills and thence to the Saskatchewan country. On the south it spread out over the Gulf states, but did not become prominent north of Virginia, or between the Ohio and the Great Lakes, and reached the upper Mississippi relatively late. It reached the lower Colorado on the west, but did not reach far into California or any part of the Pacific coast to the north. Likewise it reached up into the Plateau area, and even to the Déné area.[1]

The subject we have chosen for discussion is the relation of horse culture to other Plains traits and not the historical investigation of the introduction of the animal by Europeans. The preceding data are presented solely to define the problem and make no claim to completeness. However, we cannot well discuss the influence of horse culture without fixing its relative time of origin, for, if it greatly preceded other strong European influences, its value as a cultural characteristic is high. While the fixing of such a date is quite speculative, we have its limits clearly defined, for we find the horse in the far north in 1751 and know that it could not have reached the Indians before 1500.

It is generally considered that horses abandoned by De Soto's men in 1541 gave rise to the wild horses later found west of the lower Mississippi. This may be true. Recalling that at about the same time Coronado reached the Wichita, we have an increased probability that the nuclei of several wild herds were formed about this date. However, we have found no historical support to this

[1] See Lewis, A. B., Tribes of the Columbia Valley and the Coast of Washington and Oregon, *Memoirs of the American Anthropological Association*, vol. 1, part 2.

theory, for the first mention of wild horses is much later.[1] However, it may be that the Indians profited by the use they saw made of horses and took possession of some abandoned animals. This would not have been difficult. The Pawnee have a story that the first horse they ever saw came into their village and permitted itself to be handled. Such could have happened with domesticated horses just turned loose. In other words, a normal series of events could have placed the horse in the hands of Indians and at the same time started the wild herds. If this did happen in 1541, 1560 could have found several tribes in the south well mounted and far advanced in horse culture. Then we must not overlook the tribes in southern Texas who even in 1541 could have easily reached Spanish posts on the other side of the Rio Grande. So 1600 could have found the horse at the headwaters of the Missouri and even among the Blackfoot. This is, of course, speculation, but it is well to note that for all we know the Crow and the Blackfoot, for instance, may have had horses for 150 years before their first mention in 1742 and 1751. In other words, we have an interval from 1550 to 1850, or three hundred years, in which the horse culture of the Plains could have developed along its own lines.

It seems quite reasonable to assume that horse raiding by the Pawnee and Kiowa had begun in the early years of 1600. If this is correct and these historic tribes were then in the same relative positions as later, 1650 should have found the horse abundant on the Saskatchewan. At least, we have positive historical data for the general use of the horse throughout all the area from the headwaters of the Saskatchewan, down the west of the Missouri and thence to the Mississippi by 1751, and data that make clear the possibility of such distribution as early as 1650. The tribes west of the Missouri and the lower Mississippi were practically free until after 1840 and, while subject to some cultural influence and external control before that time, were on the whole about as free to develop their culture as they could have been before the period of discovery. We thus have a positive period of one hundred years in which the Indian was fairly free to develop his horse culture

[1] Hendry (op. cit., p. 335) saw wild horses on the Saskatchewan in 1754.

and a very probable period of another one hundred years in which many of the tribes were in no direct contact with whites of any description. We thus have a unique example of the development of a culture trait in response to contact with another culture and its transmission from one tribe to another among several distinct linguistic stocks, all of which suggests several important analytic problems.

Thus we may ask—

1. Is the Plains culture as a whole older than the introduction of the horse?

2. What changes in culture traits can be attributed to the influence of horse culture?

3. What had the environment to do with the distribution of horse culture?

If we take up the first and look for traits older than the introduction of the horse, we can lay hands upon at least one such. The use of dogs for transporting baggage is mentioned by Coronado's men, a date before the era of the horse. Furthermore, we have linguistic evidence in the names for horse, such as "mysterious dog" and "elk-dog," certainly implying a resemblance in the uses of the two animals. We should expect no one to doubt the assumption that dog traction, one of the most distinctive traits of Plains culture, was fully diffused over the area before the horse was known.

As to the tipi in the form familiar in the nineteenth century, we are far less certain. Obviously dogs could not have transported the tipi of horse days with its long heavy poles and bulky cover. Descriptions of the tipi have not been found by us at a period when the horse was unknown. The tents mentioned by Castañeda appear to be tipis, but we cannot be sure of their detailed structure. They were, however, transported by dogs. The distribution of the tipi among a few of the Central Algonkin and its analogous forms to the eastward among the Cree, may warrant a guess that it was diffused over the Plains in some form along with dog traction; but a mere guess will not help us here. However, in another place we have called attention to the apparent relation between the travois and dragging tipi poles. The horse travois is made of tipi poles

and the few dog travois we have seen had their poles pointed at the butts precisely like the tipi poles. Yet the true travois was found in the northern part of the Plains; the tribes of the south placed the load upon the horse and dragged the tipi poles at the sides. In Castañeda's time this was the way for dogs. In short, there are several reasons for assuming that the northern travois was developed from the tipi poles dragged by dogs. If we accept this explanation, it is clear that a tipi of some form and the travois are historically associated and that the former is the older.

Turning to less material things we may cite the coup and methods of warfare. It would seem that since almost everywhere in the Plains a war party set out on foot, even though they went after horses, it is safe to assume that the entire procedure had become a fixed custom before the advent of the horse. The coup is so fundamental a matter in the warring system of the Plains that it also must have been there for a long time. This, however, is not a strong argument.

As to the sun dance and the camp circle, two associated traits, we have no evidence. The same is true of the police, or soldier system and societies for men. Yet there is one kind of evidence that applies in a general way to all traits: viz., historical tradition. As a rule, the Indians themselves are positive that the acquisition of horses was much more recent than the sun dance and other important traits of culture. While this has some weight we must not value it too highly, for the sun dance itself was but recently introduced to some of the Ojibwa and there are no good reasons why it could not have spread rapidly over the Plains at any time.

If we turn to some of the intermediate tribes, like the Mandan, we can prove by archeology the existence of the earth-lodge before the horse. Maize also was among the Mandan. It seems most certain that Mandan culture was essentially developed long before 1738.

The net result of this survey is, then, that we have positive evidence of the dog travois development before the horse, but that on other traits of culture we have only presumptions for the area at large.

If we turn to migration the case is equally difficult, for evidence of real migration in the Plains is rare. The Cheyenne are the one clear case, but it seems that the first stage of this southern movement must have occurred even before horses reached them. If we take the Blackfeet, we find them mounted when first discovered, but occupying practically the territory of later years; that they as a people developed elsewhere may be, but they could scarcely have migrated during the years between getting horses and the record of them in 1754 or even earlier without having traditions of such a movement as definite as their traditions that horses were acquired from other tribes. Likewise the Pawnee did not change their habitat until moved by pressure of the Government.

It may be correct to interpret the general tendency of all the surrounding tribes to raid the Snake as due to the latter's possession of horses and lack of firearms with which to repel the invaders. The Pawnee with the sons of La Verendrye in 1742 turned back at signs of Snake camps, indicating that they were a power to be considered. Blackfoot traditions indicate that in early days the Snake were frequently found hunting on the upper Missouri, but were eventually pushed back because they lacked firearms. If we accept this at its face value, we see that while it is probable that the presence of the horse urged the Snake eastward into the Plains like their brothers, the Comanche, this was equalized by the superior arms and plundering ambitions of other tribes. Thus, in respect to the Snake, the horse could have extended their ranges only to the north and west, if indeed it had any effect.

It is true that some small movements seem to have occurred, but these are not very significant and those of which we have historical knowledge took place chiefly among the tribes along the banks of the upper Mississippi where the horse was introduced last. In fact, very few of the Plains tribes are known to have permanently shifted their homes during the period 1680–1860. We must therefore accept their positions as we find them at the opening of the historical period.

There is, however, a modified form of migration that must be noted—the practice of going on periodical hunts, when the whole

social unit moved and killed buffalo as an organized body. Of the typical tribes we have definite statements from the Blackfoot and the Teton-Dakota that they had permanent winter camping places from which they set out in the spring and to which they returned in the autumn.[1] Their ranging was usually within recognized limits. That they also camped in winter and roamed in summer before the coming of the horse is probable. The agricultural tribes of the eastern border, such as the Pawnee, Osage, etc., were in historic times given to the planting of their fields and then setting off on a grand hunt. That this was not unknown before the time of the horse is suggested by Perrot's account of the Illinois.[2] While this proves nothing as to the true Plains tribes, it raises a strong presumption that the periodical hunt of the Pawnee, etc., cited above, was practised in pre-Columbian times; so the custom observed in horse days was merely a shift from dog to horse travois, and from walking to riding, and not strictly a new trait. Indeed, why should the Plains people have had the dog travois if they did not go on long journeys by land? Hence, I believe it must be granted that the circumscribed ranging of the Plains tribes was a cultural trait before the advent of the horse.

On the other hand, the horse may have intensified this ranging and even extended it to the final extinction of maize planting. Thus Maximilian says of the Ponca:

> "They formerly lived, like the Omahas, in clay huts, at the mouth of the river, but their powerful enemies, the Sioux and Pawnees, destroyed their villages, and they have since adopted the mode of life of the former, living more generally in tents made of skins, and changing their place from time to time. . . . They plant maize, which they sell to the Sioux, but they had neglected to cultivate this grain for about three years, and obtained it from the Omahas."[3]

[1] Mooney has made an argument for the migration of the Kiowa from Montana to their present location 1780–1832 (Seventeenth Annual Report, Bureau of American Ethnology, part 1), but Scott dissents, bringing both historical and traditional evidence of their position south of the Pawnee before 1681 (American Anthropologist, n. s., vol. 13, p. 372). Both may be correct, for the presence of the Kiowa in the north may have been due to their periodical wanderings.

[2] Perrot, Nicolas, Indian Tribes of the Upper Mississippi, etc., Cleveland, 1911, p. 119.

[3] Maximilian, Prince of Wied, Travels in the Interior of North America, translated by H. Evans Lloyd, London, 1843, p. 137.

The Comanche were the great horse Indians of early days. The Pawnee say that in former times other tribes named them horse Indians. The sons of La Verendrye met those they called Horse Indians, west of the Black Hills in 1741. There is said to be good evidence that they ranged even to the mouth of the Yellowstone. It seems but fair to assume that such an extensive range came after the use of horses. There are some traditional data, as for example, the Blackfoot believe their frequent journeys to the Missouri were not undertaken before they acquired horses. However, such evidence must be taken with reserve, for even in later times Blackfoot war parties to the Crow and to the Dakota country usually set out on foot.

Perhaps with more search we could find indications that the coming of the horse extended the range of the tribes. The possession of this new means of transportation and this new element of property would no doubt act as a cultural stimulant. The Pawnee must have been at the flood-tide of their national life during the period 1700–1800. The Blackfoot seem to have reached theirs even at the time of Hendry in 1754, at which time the entire population rode horseback. Our difficulty here as elsewhere arises from the fact cited above that the horse reached many of the tribes before they came to the knowledge of explorers. Yet, if we take the available data into consideration there is good ground for the assumption that the most typical tribes all reached the high-water mark of expansion and culture in the eighteenth century.

We must not, however, too hastily conclude that the introduction of the horse during the seventeenth century was the chief cause of this. The presence of the white traders on the continent must be considered. Firearms were soon in the hands of the tribes along the Mississippi and so spread westward. These new weapons must also have brought feelings of power and confidence. Then again the trade by which they were received created new demands, new wants, and so stimulated production. Thus, it seems equally probable that the disturbed balances of power from the introduction of guns and the necessity of visiting regions adjacent to trading posts, must have exerted a strong influence upon the periodical

ranging of tribes, a change in which the horse was undoubtedly a large factor, but not the only one.

We may recapitulate then by stating that while there is a presumption that the horse stimulated periodic ranging on the Plains, there were other factors capable of exerting similar influences; but that actual migration was due to the horse is quite unlikely. The existence of former periodic ranging is proven by historical evidence in some cases and made inferential in others by the previous development of dog traction. In short, we may say that only those traits directly associated with the horse can be taken as later; the most characteristic traits, for want of evidence to the contrary, must be given priority, and that while the horse along with other European influences may have intensified and more completely diffused the various traits, there is no good evidence at hand to support the view that the horse led to the development of the important traits. In other words, from a qualitative point of view the culture of the Plains would have been much the same without the horse. It does not follow though, that these Plains traits were diffused over the same area as found in 1850. For example, the characterization of the southern Plains Indians in the Icazbalceta[1] manuscript can scarcely be improved upon as defining the Plains type of culture, but we have no way of determining its extent.

We may be reminded that in the Plains area are several subtypes of culture. There are first of all the nomadic tribes of which the Blackfoot, Crow, Teton, Kiowa, Arapaho, Cheyenne, and Comanche may be taken as types. These are the great horse and buffalo Indians as we know them. They ranged north and south in the true plains while on either border were tribes of less intense culture and varied by additional traits. Our problem, therefore, is as to whether the development of this typical group in which the horse seems so important a factor did not occur after the acquisition of the horse. If so, then the true Plains culture may properly be said to have developed with the introduction of the horse, even though every trait may have been in existence somewhere in the area long before. A rather extended argument could be presented on this point, but a few suggestions must suffice.

[1] Winship, The Journey of Coronado (1904 edition), p. 194.

1. Though true migration since horse days is rare, there is a very strong presumption that several of these typical tribes had scarcely reached their historic ranges by 1600; and in that event could scarcely have developed their present culture before the horse came.

2. The high tide in typical Plains culture seems to have come in the eighteenth and nineteenth centuries. While this was the era of trade, yet the horse increased the economic prosperity and created individual wealth with certain degrees of luxury and leisure; also it traveled ever ahead of white trade and the white trader.

3. The horse was a great inciter of predatory warfare which must have increased the range and intensity of operations, thus intensifying tribal contact and increasing intertribal knowledge, all of which would favor diffusion.

4. The culture of these tribes takes its individuality from apparent adjustments of traits to a more nomadic and intense form of life, the practical inhibition of such traits as pottery, basketry, agriculture, and fixed houses; rather than from the introduction of any new traits except those directly associated with the horse.

Hence, we may formulate for further consideration the proposition that while no important Plains traits except those directly associated with the horse seem to have come into existence, the horse is largely responsible for such modifications and realignments as give us the typical Plains culture of the nineteenth century, or which differentiate it from the subtypes in the same area. Thus we can see how practically all the essential elements of Plains culture would have gone on, if the horse had been denied them; but it is difficult to see how the vigor and accentuated association of traits forming the typical group and their intense occupancy of the true plains could have been what it was in 1800 without the horse. A type of culture, we should note, is the conception of an associated group of traits, and it is the manner of the association rather than the identity of the traits that determines it.

We may now turn to a more specific examination of the point as to what distinct modifications of culture were produced.

In the first place, the horse brought with it all its own associated

elements of culture. Our collections show that saddles and other riding gear are quite uniform in type for the Plains and are on the whole after Spanish patterns. Even the use of the reata seems to be of Spanish-American origin. Riding itself was, of course, intrusive. Knowledge of how to care for horses would also come in from the Spanish. So we must surely have had a whole group of associated culture traits carried along with the horse.

Thus we have a fine example of diffusion, like the sun dance, men's societies, etc. Could we show that the diffusion of horse culture preceded the diffusion of these other traits, we should have a strong case for the horse as a modifier of culture. As we have seen, what little evidence there is points in the other direction.

The use of the horse in war and hunting may have greatly modified weapons, tactics, etc. Thus, it seems quite probable that the long spear of the Comanche and other southern tribes was developed for use on horseback, possibly even copied directly from the Spaniards. Yet we are dealing with elements of associated horse traits, constituting the horse cultural complex. Our problem is, however, as to whether there are other complexes created or modified indirectly by the presence of the horse. In this connection we can offer little save speculation. As we have so far developed the subject there is some reason for expecting that the relative intensities of many traits were changed, giving us a different cultural whole. We have noted the probability that horse culture inhibited tendencies toward agriculture, pottery, and basketry, and favored the use and development of the tipi; but our observations can apply only to the less typical tribes who had these traits, since their mere absence is not satisfactory evidence of inhibition. As an intensifier of original Plains traits, the horse presents its strongest claim. Some of the early Spanish observers note the great use of large dogs, both for packing and travois traction, and the almost entire dependence on the buffalo; here we have at least some of the highly characteristic traits of Plains culture in horse days. To such a culture the horse would most surely be a new and superior dog; he would like any greatly improved appliance enrich and intensify development in certain established direc-

tions. It is also conceivable that this development had a similar effect on other material traits, but to varying degrees. We see, however, no good ground for assuming that any important traits, material or otherwise, were either dropped or added among the buffalo-hunting dog-using rovers observed by the first Spanish explorers. Economic prosperity and contact with the white race have greatly modified the material culture of the Indian, physiologically by interbreeding and disease it has brought marked changes and politically it has stamped out his own government; but not even the great wealth of the Osage or the Pawnee has served to modify greatly their religious practices or their social ideals. It is chiefly the persistently driven wedge of the missionary and the teacher that is slowly overcoming that tenacious phase of culture. The familiar phenomena of tenacity of hold upon tribal religious, medical, and social practices seems a good argument against the great effects of new material traits upon culture in general. Thus, it would be exceptional to find that the introduction of the horse was alone responsible for the typical Plains culture.

We have noted the peculiar distribution of the horse, how it spread rapidly east and west of the lower Mississippi and especially on the west passed quickly northward, but west of the Missouri. We thus have the section between the Missouri and the Mississippi and eastward between the Ohio and the Lakes, in which horse culture made its appearance late, if at all. We noted also its failure to make progress in California. It has been suggested many times that the distribution of the horse was correlated with the geographical environment, but the causes for the above phenomena are by no means obvious. Thus, it is fair to ask what would have been the area of diffusion in a wild state if introduced over the Mexican frontier. In such a region the horse would live somewhat like he did upon the great ranches of some years ago, from which we might infer that the distribution would follow the boundaries of the grazing industry. The grazing area is fairly well defined—a broad stretch east of the mountains and through western Kansas and Nebraska, parts of the Dakotas west of the Missouri, and a small section of the Saskatchewan country. Ranchmen have said

that this area was marked by peculiar short grasses that cured well and furnished good winter grazing, also that the snow did not lie deep enough to prevent grazing except for very short periods. While this may be true, it does not follow that the horse in a wild state would confine himself to this area, for the buffalo did not. While this horse-using Indian area is in a way coincident with the grazing area, we have not fallen in with any study of the reasons why grazing was so confined. It is quite possible that it was largely accidental and due to political and economic factors, such as relatively greater profit from agriculture east of the range, the direction of settlement, etc. Thus, unfortunately, no one has worked out this problem for us, so that we can only recognize a presumption that the region offered very favorable conditions for the inclusive diffusion of wild horses. The significance of this point lies not in the natural diffusion of horses, for the Indian was not by any means a passive factor in the case, but in its bearing upon the care given horses by their owners. Here again we lack information. The corn-raising tribes were the only ones producing suitable food for horses; they were also the only ones having buildings capable of sheltering horses. Thus Maximilian says of the Mandan:

"Inside of the winter huts is a particular compartment, where the horses are put in the evening, and fed with maize. In the daytime they are driven into the prairie, and fed in the bushes, on the bark of poplars. There are, probably, above 300 horses in the two Mandan villages."[1]

From Dunbar's account of the Pawnee we read:

"They went into winter quarters in some place where water, wood and unburnt grass in abundance for the horses were to be had. Here they remained till forage became scarce, when another place was sought. If grass could not be found in sufficient quantity, they cut cotton-wood trees, and subsisted the horses on the bark and tender twigs. The return to the villages did not take place till young grass was started in the spring."[2]

The Crow, according to Maximilian, possessed "more horses than any other tribe of the Missouri, and to send them in the winter

[1] Maximilian, Prince of Wied, Travels in the Interior of North America, translated by H. Evans Lloyd, London, 1843, p. 272.

[2] Magazine of American History, 1882, vol. 5, no. 5, p. 332.

to Wind River, to feed on a certain shrub, which soon fattens them" (p. 175).

Thus it is apparent that the Indians did take some care of their horses. In case of the Pawnee they roamed toward the "range area." Yet all the typical tribes of the Plains from the Assiniboine of the north to the Comanche of the south had no buildings large enough to shelter horses, nor have we any record of their preparing hay or other feed for winter. Hence, in the main the horses of these Indians must have bred under conditions similar to those of the range in later times. Yet that this selective influence would cause the horses of tribes along the upper Mississippi to die out cannot be entertained, because each spring they could be replenished by raids upon their horse-using neighbors, and again it was these eastern tribes that raised an abundance of maize from which horses could be fed.

Another point is as to the success of the Indians in breeding horses. Here again we lack good data. J. C. Mead states that the "Paduca [Comanche] who seemed to be on good terms with the Spaniards, said they obtained their horses from them by barter, and that they had not yet been able to raise any colts" (1724).[1] Yet the herds of Indians must have increased because the Indian horse was a type of its own. Many tribes had special medicine formulæ for increasing the number of their colts. Again, we note that Marcy (1852) found the Comanche still dependent upon theft or trade:

> "But as they have no commodity for exchange that the traders desire except horses and mules, they must necessarily give these for the goods, and large numbers are annually disposed of in this manner. As I have before mentioned, nearly all these animals are pilfered from the Mexicans; and as the number they traffic away must be replaced by new levies upon their victims, of course all that the traders obtain causes a corresponding increase in the amount of depredations."[2]

Spanish brands were noted by Umfreville on the Saskatchewan in 1784, and it is a fair assumption that the asses seen by Hendry

[1] Kansas Historical Society Collections, vol. x, p. 107.

[2] Marcy, Exploration of the Red River of Louisiana, p. 106.

among the Blackfoot in 1754 also found their way by theft and trade northward from Mexico.

Thus, while a supply of horses was constantly introduced by predatory warfare upon the Spanish settlements and passed along northward by theft or native trade, we have on the other hand the existence of a more or less distinct type of Indian horse wnich suggests a certain amount of breeding. There were, however, herds of wild horses in parts of the area with which this so-called Indian type of horse may be associated.

While we have no direct data as to the extent of Indian propagation, we have the experiences of the Government in adapting the Indians to reservation life. Horse raiding was broken up with great difficulty, and it was many years before the Indians made any headway with the increase of their own herds. This seems to imply that the traditional as well as the ideal way to acquire horses was by raiding. The environmental problem thus shifts from horse to man, the question being as to whether there were geographical causes restricting raiding to certain regions.

The area in which such raiding was most in evidence was the region west of a line extending due south from Lake Winnipeg to the Missouri and thence along that river and the Mississippi to the present boundary of Louisiana, thence southwestward to the Rio Grande. In raiding one must expect active pursuit. As the source of supply for horses was to the south, the tribes above the Missouri and the Ohio must needs have crossed over the Missouri or the Mississippi for their booty and likewise have ferried or swam their horses over on the return trip. This would be difficult under ordinary circumstances, but in a running fight would be disastrous. That the Indians of the Southeast did ferry horses across the Mississippi is most certain, but on the other hand, they did not develop horse raiding as the leading feature of warfare. The westward expansion of the English colonies did not place horses within striking distance of the Illinois tribes until long after horses were numerous among their western neighbors. Hence, our data seem to favor the view that the early spread of the horse northward west of the Missouri and not eastward was due to the physical barriers presented by the river.

Still we must consider the possibility of ethnic factors, or ethnic differences, between these two regions. Nothing appears in the material culture of the Illinois and their neighbors that would offset the value of the horse for hunting and war, unless it be canoes. Their use for river travel was quite characteristic of the region and was adopted by the French. It may well be that the whole tendency of the French colonists to do without horses was due to their having taken up the canoe culture of the Indian. In no part of the great canoe area did horse culture secure a strong footing. While we must not give too much weight to this, it is reasonable to assume that where canoe travel was well developed, the value of the horse would be less. Hence, the canoe culture of the region we are considering may have offered effective resistance to the early diffusion of the horse. Obviously the horse could not be substituted for the canoe as readily as for the dog.

The net result of this inquiry has then been to give some weight to the interference of canoes and to make quite probable the influence of the Mississippi and the lower Missouri rivers as physical barriers to the northeastward spread of the horse by raiding. Both are doubtless correlated and to a large extent environmental factors. As to the presumption that the kind and quality of pasturage may have been an important factor, we find little support.

Finally, among the ethnic factors we may consider relative tribal efficiencies as horse culture carriers.

Our data on the northern plains point toward the Shoshone (Snake) as the chief distributors, but we can get no historical light on their relations with the Spaniards. We do know, however, that the tribes now at Fort Hall, Idaho, and those at Wind River, Wyoming, formed a fairly homogeneous group and still regard themselves as close relatives. Their range seems to have been from eastern Colorado to the headwaters of the Missouri and westward. It is probable that in 1600 the Comanche were also a part of this group. Thus, while we lack definite historic data as to contact with the Spaniards, we have both territorial and ethnic conditions for the ready diffusion of horses among the Shoshone. If the Wind River division was not in direct contact with the Spanish settle-

ments, they were within striking distance of the Pawnee. This, taken with the direct testimony of the Blackfoot as early as 1751 and the still earlier statement of La Verendrye, makes a strong case for the Shoshone as the horse carriers to the Saskatchewan country and all points above the Platte.

As evidence for the existence of a trade or plunder channel by which horses could readily pass from the Spanish settlements to the Saskatchewan, we may note that Hendry saw asses among the Blackfoot in 1754, a few years later Cocking saw mules, and later Umfreville (1783) saw horses with "Roman capitals burnt in their flanks with a hot iron." We have no evidence that asses and mules were propagated by the Plains Indians, and above all the brands must certainly have been placed by Europeans. Further, the Blackfoot traditions are that their supply of horses came from the Snake and the Flathead. Thus, with the Shoshonean link we have direct contact between the headwaters of the Rio Grande and the Saskatchewan. We see further that the Crow, Teton, Arapaho, Kiowa, Pawnee, and later the Cheyenne were in direct contact with the long range of the Shoshone. This also explains the early appearance of the horse among the Nez Percé and some of the Salish. As active carriers of horse culture the Shoshone must have exerted considerable influence on the early material culture of the typical northern Plains tribes, a phase of the problem we shall discuss elsewhere. In this connection they are an offset against the assumed influence of environment in turning horse culture to the west.

While the problem we have discussed is far too complex to permit a paper of this kind to be more than a suggestion of new lines of research, the following conclusions seem permissible: The horse reached most, if not all, of the typical Plains tribes from three hundred to two hundred years before they lost their cultural independence. In its diffusion over the area a large number of associated traits were carried along as a whole, or as a cultural complex. At least some of the tribes had developed dog traction to meet their nomadic wants before the horse came, and needed, therefore, but to substitute the horse for the dog in their own dog-culture complex and to

take over the necessary parts of the Spanish horse-culture complex. Thus among the less sedentary tribes the whole basic structure of the later horse Indian culture was in existence when the horse came. We have found no reason to believe that the introduction of the horse did anything more than intensify and perhaps more completely diffuse the cultural whole previously formed. As such, however, it seems responsible for reversing cultural values in that the earlier dominant sedentary cultures of the Siouan and Caddoan tribes were predominated by the Shoshone and other formerly struggling nomads of their old frontier. As the leading horse carriers, the Shoshone played a large part in this development, but they lacked many of the strong cultural traits which the Crow, Teton, etc., received from the original Plains culture, in consequence of which they now fail to qualify as typical tribes. Finally, it appears probable that the accidental presence on the New Mexican frontier of a well-developed dog-traction culture was the chief determining factor in the direction of horse-culture diffusion though there were other ethnic factors as well as environmental conditions that could have contributed to the result.

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THE BOOMERANG IN ANCIENT BABYLONIA

By JAMES B. NIES

IN Germany last summer my attention was drawn to a recent supplement of *Kosmos*, issued in the form of a monograph on the physical geography of the world during the several geological epochs.[1] Maps showing the surface of the earth at each period form an interesting part of the little volume. By these maps it is shown that continents now separated by vast oceans were once united.

However firmly we may believe this to have been the case, we must admit that the matter, at present, floats in an atmosphere of theory. The distribution of animals and other living creatures may offer, here and there, a thread of evidence. Unusual artifacts, in places widely separated, may point to a common source; though artifacts of almost similar character are best explained by psychological response to similar needs the world over in all ages. There are, however, at least three objects which originated in a remote past, that would seem to require, in each case, a common source and to which the argument from psychology is not applicable. One of these is the cosmic *step-pyramid*, found in Egypt,[2] Asia,[3] and America,[4] the same in appearance and purpose. Another is the *swastica*, or sun symbol, found in Europe, Asia, and America. The third is the *boomerang*, found in ancient Egypt[5] and modern Australia. A weapon similar to it is found in northeastern Africa and southern India, and there can scarcely be a doubt that it was once

[1] Wilhelm Bölsche, Festländer und Meere im Wechsel der Zeiten, Stuttgart, 1913.

[2] Wm. Flinders Petrie, Ten Years' Digging in Egypt, p. 141 et seq.

[3] Hilprecht, Explorations in Bible Lands, pp. 459–469. Hommel, Geographie, p. 126.

[4] E. G. Squier, Peru, pp. 130–133. Joyce, South American Archæology, pp. 142, 179. Max Uhle, Pachacamac, chap. XX.

[5] Erman, Ägyptisches Leben, pp. 322, 329; also Grammatik, p. 310, no. 6. Prof. William Max Müller is authority for the statement that boomerangs were not used as war weapons in Egypt after 2000 B. C., but for hunting birds they were used there much later.

known on the American continent, the obtuse-angled rabbit-sticks of the Hopi of Arizona and Gabrieleño Indians of southern California being similar in shape and characteristics.[1] In such legends as "Coyote takes Arrows from Owl" we have also a vestige of the use of the boomerang.[2]

It is not my purpose to present a paper on the boomerang, but to show, from the evidence of a cuneiform sign and its meanings, given in the Assyrian texts, that the boomerang was known in Babylonia not to the historic but to the prehistoric aborigines that first settled in Shumer and Akkad. The interest of this matter lies in the fact that, if we can thus reach back into prehistoric times in the case of one such sign, we may hope for information of value to anthropology from other signs as well and from other ideographic languages such as the Chinese, the Egyptian, the Hittite, and the Aztec.

In order that there may be no doubt as to what is meant by the word boomerang, a distinction, followed by a few words of explanation, will here be in place. We must distinguish between the boomerang and the throwing-stick. The latter was, perhaps, in universal use among prehistoric men and is found practically everywhere among contemporary primitives. It assumes various forms from a plain club-like stick to a hammer, and, when thrown, it does not return.

The return-boomerang, on the other hand, is an implement made of a single piece of wood, in a form that varies from a parabola to an obtuse angle. The upper side must be convex and the lower flat. Northcote Whitbridge Thomas, in his article on this subject in the 11th edition of the *Encyclopædia Britannica*, says they are so modeled that the thickness is about one-sixth of the breadth, which again is one-twelfth of the length, the last varying from 6 inches to 3 or 4 feet. In Australia the return boomerang is always curved at an angle of 90° or more, but the angle may vary from 70° to 120°. The weight also varies from 4 to 12 ounces, but 8 ounces may be regarded as the average weight.

[1] F. W. Hodge, ed., Handbook of American Indians, pt. 2, p. 348.

[2] Goddard, Apache Texts, 27, page 225.

Thomas states that the arms have a skew, being twisted two or three degrees from the plane, while the ends are raised above the plane of the weapon, and adds that "the peculiarity of the boomerang flight depends mainly on its skew."[1] It is thrown with concave side in front, and goes in a straight line, with a whistling sound, some 30 or more yards, with nearly vertical rotation. Then it inclines to the left, lying over on the flat side, and, rising in the air, after describing a circle of 50 or more yards in diameter, it returns to the thrower.

In Berlin last summer I met Erman, the Egyptologist, and asked him whether he had, in the museum, any specimens of Egyptian boomerangs. He said, "Yes, several, but they do not return." I later saw these and found them to be a variety suitable for hunting birds. In his *Ägyptisches Leben* he has an illustration of a scene taken

FIG. 1.—Egyptian boomerang from Gurneh, XVIII Dynasty or earlier, in the Metropolitan Museum, New York.

from a papyrus in which a bird hunter is actually using a return-boomerang. There can, therefore, be no doubt that it was known. Through the courtesy of Dr Lithgow I was able to examine a specimen that came from Gurneh in Egypt and is now in the Metropolitan Museum of Art. It was bought from a native in 1911 and seems characteristic. It is slightly flat on one side, convex on the other, and has a rather wide angle, as the accompanying illustration (fig. 1) will show. It weighs 6 ounces, is 4.3 cm. wide, 1.3 thick at the middle, 54 cm. round, 46 cm. across, and the arch is 13.5 cm. high. The angle I have not taken. I think this, like the specimens in Berlin, is a bird boomerang, and I hope Dr Lithgow will have a replica of it made for testing purposes. It does not seem to have the skew or

[1] Illustration in article "Boomerang," *Encyclopædia Britannica*, 11th ed.

the elevation of 2° to 3° at the points, which Thomas states are necessary to give the weapon its peculiar flight, but then one will find that these characteristics are also wanting in some of the boomerangs from Australia in the American Museum of Natural History in New York.[1]

FIG. 2.—Archaic Babylonian tablet, known as the Hoffman Tablet, in the library of the General Theological Seminary, New York.[2]

The question we have now to answer is, Did the boomerang exist in ancient Babylonia, or, rather was it, at any time, used by the race known as Babylonians, or Sumerians?

[1] Mr Van Shrum, an expert maker and thrower of boomerangs, during his recent engagement at the Hippodrome in New York examined this specimen and said it was peculiarly suited for bird hunting and would return, if thrown high, even though it lacks the skew.

[2] For translation and discussion see article by Ogden and Barton in *Journal of the American Oriental Society*, 23, p. 19 ff.

Hidden in many of the highly conventionalized signs of the Assyrian language are pictographs that trace back to a remote antiquity. Babylonian writing ceased about 50 B.C. From that date backward there is an unbroken series of historical inscriptions to Ur-nina whose date is conservatively fixed as 3000 B.C., but may be much earlier. Before him are six or seven kings and patesis of undetermined dates. During all this time the simplification of signs from the often awkward and complicated pictograph went on, but, even in the early stages of the writing, it is not always possible to determine the pictographs from which many of the signs are derived, and it is evident that a considerable period must have elapsed between the time of the inscriptions and the purely pictographic stage of the writing.

To a very early period belong such tablets as the Hoffman, now in the General Theological Seminary collection (fig. 2), an archaic tablet in the University Museum collection in Philadelphia, and the Blau monument in the British Museum. Apparently in these also the signs are to be read in a conventional way as ideograms and phonograms, though some have ventured to date these as early as 6000 B.C. They belong, without doubt, to a prehistoric time, and their study becomes properly a matter of interest to anthropologists as they reveal the practices, utensils, and weapons in use when the pictographs were in the earliest stage of evolution as written language. The type of Babylonian writing familiar to most of us is the cuneiform or wedge-sign type, but there is an earlier linear form which alone appears on such tablets as the Hoffman and on the majority of the seal cylinders. This linear was *engraved* on stone or other hard substance, and this was evidently the type from which the cuneiform was derived. It is clear that the linear originated in a different environment from the cuneiform. A primitive people uses the material to supply its common wants that is near at hand. The linear form originated where stone abounded. Babylonia is, however, a land without stone, but with abundance of clay. Making signs on clay is a different thing from engraving them on stones, and the inventors of the pictographs, after settling in Babylonia, hit upon the method

of emphasizing the beginning of lines by means of wedges, to prevent the obliteration of lines on the soft clay.

In Assyrian inscriptions the signs have become so conventionalized that the original pictograph is rarely recognizable. This is the case in the sign we are considering, whose name is *geš̆pu*,

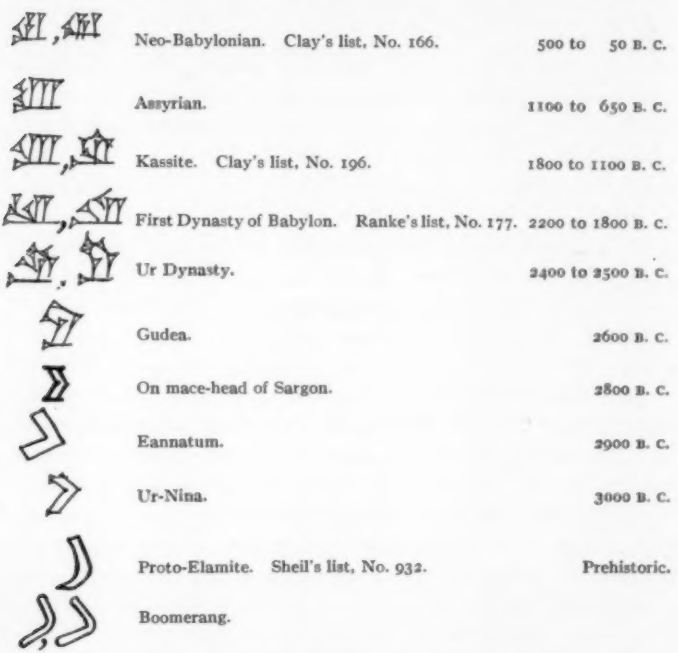
Neo-Babylonian. Clay's list, No. 166. 500 to 50 B. C.
Assyrian. 1100 to 650 B. C.
Kassite. Clay's list, No. 196. 1800 to 1100 B. C.
First Dynasty of Babylon. Ranke's list, No. 177. 2200 to 1800 B. C.
Ur Dynasty. 2400 to 2500 B. C.
Gudea. 2600 B. C.
On mace-head of Sargon. 2800 B. C.
Eannatum. 2900 B. C.
Ur-Nina. 3000 B. C.
Proto-Elamite. Sheil's list, No. 932. Prehistoric.
Boomerang.

FIG. 3.—Development of the sign *gespu* from the pictograph of a boomerang.

whose values are *ru* and *šub*, and whose meanings point to the boomerang. Cuneiform signs usually have a name, values, and meanings.

Figure 3 shows the development of *geš̆pu* from the latest back to the earliest times. This makes it clear that the sign could have been originally a picture of a boomerang.

When now we turn to the meanings for this sign, found in various

Assyrian vocabularies and bilinguals that have come to light,[1] we find such as throw, cast, strike, be in violent motion, down, destroy, finish, end, also turn, return, turn aside, separate, decide, portion, a bow, prostrate, overthrow, fall, especially *naparshudu*, to flee, deviate, i. e. to bend in running. As Barton, who thinks the sign had its origin in a bow, remarks, "From an extension of the idea of throwing or casting came the idea of giving," found in such words as *sharagu*, to give. All these meanings can be derived from some phase in the action of a boomerang and its effects, and, when this is considered in connection with the earliest pictographs, the argument seems conclusive. In fact there is no other object conceivable from which all the meanings given could be derived.

In closing, I may say that little conclusive archeological evidence of the existence of the true boomerang in Babylonia has come to light. The object in the hand of Eannatum,[2] the sickle-like weapons on the shoulders of Ishtar that appear on seals,[3] and the weapon of Ramman[4] on the boundary stones, may, however, be intended as such.

The Sumerians evidently ceased to use the boomerang when they changed from a forest environment, where wood could always be found for making the weapons, to the plains, remote from all forests, in southern Babylonia. When that was we do not know—it was probably not in historic times. One thing is certain from such a sign as *ru*, and that is, that a written language, in this instance, began its process of evolution in prehistoric times.

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[1] Geo. A. Barton, The Origin and Development of Babylonian Writing, pt. II, no. 69, p. 34.

[2] Stele of Vultures, illustration in King, History of Sumer and Akkad, facing p. 124.

[3] Seals of Ishtar, in Ward, Seal Cylinders of Western Asia, chap. XXV.

[4] William J. Hinke, A New Boundary Stone, fig. 11, no. 16.

THE CIRCULAR KIVAS OF SMALL RUINS IN THE SAN JUAN WATERSHED

By T. MITCHELL PRUDDEN

IN a paper, published in 1903, on The Prehistoric Ruins of the San Juan Watershed,[1] the writer called attention to the fact that a large proportion of the smaller house ruins in this region, standing in the open, show a definite and characteristic grouping and association of the pueblo or dwelling, the kiva, and the burial mound. This relationship is so constant, and apparently so significant in the study of certain phases of this primitive culture, that the residential complex was designated the "unit type" of ruin.

It was so called because this type of habitation, with its accessories, not only represents a concrete and simple phase of the ancient house-builder's culture, and records certain dominant social and religious impulses of his time, but also because it finds expression in many of the larger and more complex ruins in this region, which are often, in fact, obvious aggregates of these "units," variously modified to suit the requirements of special situations and environments.

Whether scattered at wide intervals over the piñon- and sage-clad uplands, or grouped in larger and smaller settlements along the meager watercourses or more favorable sags among the hills, these small habitation units consist first of the pueblo or dwelling.

This is most frequently formed of a single or double row of small rooms,—four or five rooms in each row,—or, of a single row, with one or more rooms extending forward at one or both ends, forming a shallow court, almost always facing southward.

Directly in front of the pueblo, close by, and almost invariably to the southward, is a shallow pit or saucer-shaped depression of the ground, whose diameter is somewhat less than the length of the

[1] *American Anthropologist*, n. s., vol. 5, p. 224, 1903.

pueblo, and which is considered by archeologists as marking the site of a ceremonial chamber or kiva.

Finally, still to the southward and commonly close by, is the burial ground, usually distinguishable at sight by the darker color and the texture of the soil, by fragments of pottery, flint chips, charcoal, etc., and often by the type of plants which flourish upon it.

The reason for the maintenance of these three structural features in these primitive dwelling-places has become comprehensible in the light which a study of the modern Pueblo culture has thrown on these earlier related folk. For if these simplest residences be recognized as marking family or clan units, as well as being structural units, the practices and traditions of the Pueblo people of to-day, which center in and are so largely determined by clan or other social relationships, make clear enough the impulse which led small groups of these earlier people, even in the near neighborhood of others, to maintain not only their separate houses, but also their separate ceremonial chambers and places of burial.

But this complex, constituting the simplest residential unit of these prehistoric cliff-dweller-pueblo people, is here and there variously modified, while preserving the characteristic features of the type. Thus two sets of single or double rows of living rooms may be placed end to end, or in longer series. Then, commonly, there is a duplication of the kivas, and sometimes of the burial mounds, corresponding to the increase in the dwellings. Or the wings may be prolonged, or even nearly or completely surround the kiva. Or finally, the latter may be enclosed on the sides and in front by a wall extending from the sides of the pueblo.

These are some of the more common modifications of the primitive type, when standing on unincumbered sites in the open.

The recognition of this simple structural type of ruin has proved useful in the surveys which in later years have been made of the larger and more complicated ruins, especially in this district.

For example, in the great ruin masses in the open country, such as the Aztec Spring ruin at the eastern foot of Ute mountain; the Burkhardt ruin near the head of the Mc Elmo cañon; the Goodman Point and the Yellowjacket Spring ruins, and many others in the

northern San Juan drainage. Most of these, at first sight, seem to be hopelessly confused masses of fallen walls, jumbled chambers, and recklessly scattered courts and kiva sinks; but they at once assume character and meaning when one recognizes them as congeries of more or less modified unit types, crowded on to irregular sites and adapted as best they could be to the exigencies of the conditions and the place.

One of the most striking of these site modifications, in these larger irregular ruins, is in the burial places, which are variously placed, not so constantly to the southward of the pueblo as in the common unit type, often much scattered, and not infrequently still eluding discovery.

In the ruins crowded around the heads of gulches, as in the Cannonball, the Hawkberry, and the Ruin Cañon group, and on various branches of Montezuma creek, a similar clue to topography is afforded by the recognition of the unit type in the composition. The ground-plan of the large mesa ruin partially excavated by Kidder in 1908[1] on a short western tributary of Montezuma creek in Utah, shows various forms and combinations of the unit type.

Finally, as Dr Fewkes has shown in the records of his illuminating studies and restorations of the great cliff-houses of the Mesa Verde,[2] here too the adaptation of the unit type to special exigencies of site is evident, and in the light of the interpretations which his intimate personal knowledge of modern Pueblo life and tradition and ceremony justify, affords clues to the various structural features of these imposing ruins and others of their class, which are interesting and important.

Should it be objected that the expression "adaptation of the unit type" of ruin to more complex sites and structures, assumes, without proving, that the simpler types were necessarily earlier in development; one may accomplish all that it is sought to express on this point in this paper by saying that the structural motive, embodying ceremonial as well as secular impulses, which the simpler

[1] *Amer. Jour. Archæol.*, 2d ser., Jour. Archæol. Inst. America, vol. XIV, no. 3, 1910.

[2] Antiquities of the Mesa Verde National Park: Spruce Tree House, *Bulletin 41, Bureau of American Ethnology*, 1909. Also Cliff Palace, ibid., *Bulletin 51*, 1911.

type of ruins seems to express, appears to have been similar to that manifested by larger communities, but variously modified by the latter, as was inevitable under more complex conditions of the site.

Thus the interesting question whether the simple type of dwelling marks an earlier, a contemporaneous, or a later occupancy of this region than the others, may safely be left to further objective and comparative studies.

During the series of summers which the writer devoted to a survey of the ruins of the San Juan watershed, he was constantly impressed with the fact that the depressions supposed to mark the sites of the ancient kivas (kiva-pits, he has ventured to call them) of the small ruins of the unit type, nowhere in the whole great district revealed surface traces of a wall. Throughout this region, as well as in the drainage of the Little Colorado, where also many ruins of this type are found, these kiva-pits are simple saucer-shaped depressions, lying close in front of the pueblo to the southward and usually occupying the court, when such is formed by projecting wings or by an inclosing wall (pl. 1, 1 and 2). These depressions, or shallow pits, are usually from twenty to thirty feet in diameter and from a few inches to two feet in depth at the center. Infrequently no depression at all is found, but simply a more or less stone-strewn level place.

There are usually a few, sometimes many, trimmed stones, similar to those forming the pueblo, scattered in and about the depressions, and on the side abutting on the pueblo its fallen stones often form a continuous broken slope down well toward the center of the hollow. But these stones, in no single instance coming under the writer's observation, out of nearly a thousand which he has examined in this and other districts, show wall lines conforming in shape and position to the pits.

In the larger and more complex ruins of this district, such as have been named, standing in the open and usually upon rock surfaces, one can often readily discover here and there among the secular rooms, portions of the circular walls of the ceremonial chambers. But these larger ruins are not usually so completely

1. RUIN OF "UNIT TYPE"—SIDE VIEW

2. RUIN OF "UNIT TYPE"—KIVA SITE INCLOSED BY WALL

3. RUIN 1. KIVA SITE IN CENTER OF PICTURE (BEFORE CLEARING)

fallen and weathered into more or less compact and sage-grown heaps of stone, smoothed over and often half-engulfed by the sand-drift, as are commonly the smaller ruins of the unit type built upon the more or less level surfaces of the open ground.

Although in the small ruins of the unit type no walls or other structural features are evident on inspection, the saucer-shaped depressions between the pueblo and the burial mound have been assumed to indicate the site of circular kivas. And this assumption would seem to be justified, in view of the numerous excavations and careful studies which have been made, in recent times, of larger and more complex ruins in this region, which have established certain definite and characteristic structural features of circular kivas, in close and constant relationship to groups of living rooms similar to those clustered about these kiva-pits in the open country.

But the writer is unaware of any record of the excavation of one of these circular depressions in ruins of the uncomplicated unit type in this region or elsewhere; so that their exact nature has been as yet only inferentially indicated, and the definite structural features, if such exist beneath the ground, are still unknown.

The Navaho Indian and the early settlers and present ranch folks are mostly of the firm conviction that these "sinks" were reservoirs for water, of which these early people so obviously stood in need. And without inquiring too closely into the obstacles which the lore of water sources, seepage, and evaporation might offer to a wide appeal for this genial hypothesis, they are disposed to laud the thrift and ingenuity of the erstwhile owners of this arid land.

More seriously one might consider it possible that in such primitive habitations as many of these widely scattered units are, there was no walled structure at all beneath the ground, but that the kiva, on this level or sunken site, might have had the character of the still more primitive pit-dwellings of an earlier day, of which, indeed, in the opinion of most competent investigators in this field, the circular kiva of the cliff-dwellers is presumably a significant survival.[1] In this case the moderate depressions in front of the

[1] See Nordenskiöld, Cliff Dwellers of the Mesa Verde, English trans., 1893, p. 168; also Fewkes, Antiq. of the Mesa Verde Nat. Park: Spruce Tree House, *Bulletin 41, Bureau Amer. Ethn.*, 1909, p. 20.

pueblos might indicate only the sites of such hut-like structures as have marked early phases in the evolution of the house-building art, along many independent lines of its development, in this and other lands.

In view of this lack of positive knowledge of the nature and structure of the alleged kiva-pits in these small ruins of the unit type, it seemed to the writer worth while to make a complete excavation of a characteristic example, and at the same time to obtain such data as might be forthcoming which could throw light on the question of the relationship in period and culture between the builders of these simple isolated dwelling places and those who were led to construct those more complicated and larger communal houses, both in caves and in the open, which stand in close geographical association with them.

Ruin No. I

The small ruin of the "unit type" which it was decided first to investigate,[1] is one of a little group in the Montezuma valley in southwestern Colorado, near the town of Cortez. This ruin was selected because it lies but a few miles from the great cliff-houses of the Mesa Verde on the east, and only a little farther from the open-country Cannonball ruin to the west, in both of which circular kivas have been excavated and described. Furthermore, both groups of ruins are well known to the writer, as they were before and as they now are, after systematic excavation. Thus it was felt that the study of this small ruin might afford an instructive comparison with the larger and more complex types in the same general district.

This group of ruins lies a few rods to the west of the highway which runs southward from Cortez and crosses the McElmo wash near Mitchell spring. Its exact situation is in the N.E. ¼ of the

[1] The writer was assisted in this expedition by Clayton Wetherill, whose wide knowledge of this country and its ruins, and whose unfailing energy and resourcefulness through many seasons of field work in this district have been of the greatest value. To Mr Wetherill and to Mr Henry H. Hun, of the Sheffield Scientific School, Yale University, whose volunteer services were most helpful, the writer wishes to express his sense of obligation.

N.E. ¼ of Township 35 N., of Range 16 W. of the New Mexico meridian.

As the McElmo river winds past Mitchell spring, about a mile and a half south of the village of Cortez, it makes a short turn westward between two low rock escarpments, cutting off from the adjacent wooded slope a rock islet, containing some forty acres, which slopes southeastward to the broad "Montezuma valley," facing the ragged western escarpment of the Mesa Verde. This sloping tract is covered, except at its northern end, with several feet of coarse sage-grown arid soil.

On the crown of this knoll, and scattered irregularly down its slope, mostly from one hundred to three hundred feet apart, are several (thirteen well defined) isolated ruins of the unit type. Three of these had three kiva-pits, three had two, and the remainder one each. In three of the units which were nearest together, the burial mounds were merged. In the others they were distinct and in front of the ruins which all faced southeasterly. One of the single kiva ruins was selected for the excavation which it is the chief purpose of this paper to record.

Many other similar ruins, single and in small groups, are scattered over this part of the Montezuma valley. Doubtless Mitchell spring, less than half a mile away, and a never-failing water source, in the earlier as at a later day, fostered settlement in this vicinity.

This group, as well as many other ruins in this region, for more than a quarter of a century has been a favorite resort for those seekers after prehistoric pottery who owe no allegiance to the science of Archeology. In the earlier, pre-irrigation days, it was of no slight importance to the settlers hereabouts to be able to eke out the scanty yield of an unwilling soil by prodding about in these abundant graveyards for the pottery which then, even more than now, had a considerable commercial value. Mr Walters, the former owner of the land on which this group is situated, estimates that the pieces dug out of the mounds of this one group would number not fewer than a thousand.

In the past few years, the mounds being fairly exhausted, the

addresses of the pot-hunters have been largely directed to the little pueblos themselves; and through, in and under the walls and floors of the rooms of some of the houses, as well as in most unlikely places outside, the assiduous marauders have dug and pecked and prodded and destroyed. Only the gentle legend of the reservoir has saved the kiva-pits here, as all over the San Juan district, so that these are everywhere wholly undisturbed. This group of ruins was therefore as well adapted to the writer's purpose as those more inaccessible, which have suffered less at the hands of the destroyer.[1]

The general appearance of the ruin selected for special study is seen in plate 1, 3.

The heap of dressed stones which formed the pueblo, facing east of south, rises between three and four feet above the surface of the ground, and is about 50 feet long and 30 feet wide, including the throw of the fallen walls outward. Many of the fallen stones from the pueblo mound lay along the adjacent slope of the kiva-pit. The latter was about 20 feet in diameter, measured from the top of the slopes. The center of the pit was about three feet below the general surface of the ground. Both the kiva-pit and the pueblo mound were sparsely overgrown with sagebrush, greasewood, and other small shrubs.

One of the rear rooms of the pueblo had been roughly cleared by some unknown person, and the stones and debris from this were scattered upon the rest of the mound, mostly on the rear slope. Also the exterior wall of the southwest corner room on the front row had been disturbed by a ragged trench dug outside the limits of the pueblo, apparently in response to the fatuous impulse of some curious treasure seeker. Otherwise this ruin was intact; save for the ravages of the burial mound common to all the units of the group.

THE KIVA

A short trench across the loose stones and soil of the southern border of the kiva-pit revealed, about 18 inches beneath the surface, trimmed stones laid up and facing inward. This proved to be the

[1] The present owner of the ranch property on which these ruins lie, Mr Horace G. Husted, generously placed the entire group at my disposal, and I wish to acknowledge his cordial helpfulness throughout our studies here.

outer wall of the deep recess of a typical circular kiva similar in general construction to those kivas which have long been known in the great cliff-houses of the Mesa Verde, and recently more adequately studied and described in detail, and in part restored by Fewkes.[1]

It resembled in type also some of the circular kivas, described by Morley, in the Cannonball ruin on a branch of the Yellowjacket,[2] and some of those examined by Kidder in a large mesa ruin near the head of a small tributary of Montezuma creek in Utah.[3]

Such kivas are circular-walled chambers with six recesses in the upper portion, separated from one another by six pilasters which rise flush with the lower wall of the chamber. These pilasters originally supported the roof timbers, and the southern recess is commonly deeper than the others.

While this brief and incomplete characterization will for the moment suffice to establish the general relationship of this kiva with others in this district already known, it is necessary, in order to institute a more comprehensive comparison, to describe its contents and to record with more detail some of its other significant structural features.

As it was my purpose, after photographing, to leave the ruin in suitable condition for inspection as an example of the type, all the loose stones and the refuse soil removed from the kiva and from the pueblo were hauled away from the mound.

After the loose surface debris had been disposed of, the contents of the kiva beneath were found so firmly cemented together that it was necessary, all the way to the bottom, to loosen the material with the pick, and, when more care was indicated, with trowel, brushes, and the fingers. A considerable part, perhaps a third of the contents of the kiva, consisted of trimmed stones, fallen in from its walls or roof, and especially on the northern side, from the front walls of the adjacent pueblo. From their position and shape, some

[1] Antiquities of the Mesa Verde National Park: Spruce Tree House, and Cliff Palace, op. cit.

[2] *American Anthropologist*, vol. 10, 1908, p. 596.

[3] *Amer. Jour. Archæology*, 2d ser., Jour. Archæol. Inst. Amer., vol. 14, no. 3.

of these stones could be identified as coming from the inner sides of the top courses of the pilasters on which the roof-timbers had rested.

Near the floor, about the center, there were several large flat stones (pl. VI, 2), not belonging in the structure of the walls, which one may conjecture formerly to have been placed upon the roof, as such stones often are on modern pueblo kivas, and to have fallen with it. In two instances there were deep fractured dents in the adobe floor under the corners of these loose flat stones, indicating a considerable fall. A large corrugated pot lay shattered under the edge of one of them.

As the floor level was approached in the clearing, various artifacts were exposed, the location and relationship of which seemed to be without especial significance. There were numerous segments of deer and turkey bones. There were several bone implements (see pl. II)—awls, needles, cylinders, and scrapers. One black polished lignite pendant was found; it measured one by seven-eighths of an inch on the sides, was about one-eighth of an inch thick, and was pierced at one end for suspension.

Of stone implements (see pl. III) there were three roughly fashioned axes (1); one so-called "scraper" (2); one pounding-stone or maul (3), with slight depressions pecked on two sides; two each of roughly formed balls and thick discoidal stones (4); one discoidal and one elongated stone (5), both polished on one side as if used for grinding. Several manos, or hand grinding stones, were found, some blocked out in the rough, others smoothed and showing varying degrees of thinning from wear (pl. IV). There were many fragments of these hand grinding stones in the debris of the kiva, and one small fragment of a metate. There was one small sandstone block, a little more than an inch square and nearly half an inch thick, with a deep concavity in one side, which was believed to be a small mortar (pl. III, 7). Of stone projectiles, only an arrow-point and a spearhead, both roughly fashioned, were found (pl. III, 6).

The pottery found in the kiva, as well as in the front rooms of the pueblo, was of corrugated and smooth ware; the latter being

BONE IMPLEMENTS FROM RUIN 1

finished mostly in white slip with black decorative designs. Throughout the contents of the kiva were scattered numerous unrelated fragments of both kinds.

Although no whole pieces of pottery were found, either in the kiva or in the secular rooms, and all the remnants were badly shattered, it is deemed desirable, for the purposes of comparative study, to complete this record of one small ruin by a brief description and by photographs of the most noteworthy pieces found in both, in such condition of partial repair as was practicable (pl. v).

At the floor-level of the kiva, on the southwestern side, was a small food bowl, 6½ inches in diameter, white with black parallel linear decoration within, and a linear zigzag outside below the rim. The ware was thick, the edge flat and ornamented with black dots (see pl. v, *d*).

Also on the floor, near the center of the kiva, were found parts of a large, handsomely decorated jar, about 12 inches in diameter, with broad terraced bands in zigzag around the upper segment, and set in triangular masses of thin parallel lines, and bands of dotted lines (see pl. v, *c*). This jar has three pairs of holes for suspension in the thick rim, which was recessed within for a cover. Near this was a large bowl, 14½ inches in diameter, thin-walled and well finished, and decorated with spiral figures in bands, with masses of slender parallel lines (pl. v, *a*). The top of this bowl is gone; it originally had side handles,—both absent,—and several of the fragments of one side had been pierced with holes for mending. Parts of a mug, 3½ inches high, narrower at the top than at the base, with linear decoration (pl. v, *e*), and fragments of a large corrugated jar were also on the floor.

The above noted specimens of pottery from the kiva are, as will be seen, of the general type characteristic of the San Juan area, in the provisional classification of Fewkes.[1]

On the southern side of the kiva, on the floor close beside the wall, was the entire skeleton of an infant, the skull lying northward and the well-preserved bones considerably scattered. Some rabbit

[1] *Bulletin 41, Bureau of American Ethnology*, 1909, p. 34; also *Bulletin 51*, 1911, p. 67.

skeletons, found at the inner ventilator opening, may well have been a later intrusion.

In all parts of the kiva, as the floor was approached, there came to light larger and smaller, usually elongated masses, of reddish very hard adobe mortar, bearing the impress, at the sides, of small sticks and timbers. The rounded parts between these timber marks were heavily smoked and had evidently fallen with the roof.

We found a few small fragments of wood, the largest about 4 inches long and an inch thick, among these roof remnants; but they were much decayed, very friable, and largely disintegrated when exposed to the air. These and two fragments of thin strips and the slender lintels and rafters of the ventilator tunnel, presently to be described, were the only vestiges of wood found in the ruin.

The clearing developed the following structural features of the kiva (pl. VI, 1): It was walled throughout with well-trimmed and faced sandstone blocks, such as might readily be obtained from the abundant nearby ledges of the McElmo wash. These stones were laid in adobe mortar, and throughout, in the walls of the recesses as well as below these, they were backed against the densely packed earth.

The kiva was about 13½ feet in internal diameter, having a maximum variation of about 4 inches, in places, from an exact circle. It was 6½ feet in height, from the floor to the level of the top of the pilasters on which the lower roof-timbers had rested. The walls were nearly plumb, showing in general a flare of only about two inches at the top. A sketch of the ground-plan of the kiva and the rest of the ruin is shown in figure 4.

The deeper southern recess was 4 feet 6 inches deep; 5 feet 5 inches wide at its inner edge, flaring to 7 feet at the outer wall. The banquette of this recess was 32 inches above the floor. The five shallow recesses were from 8 to 12 inches deep. The corresponding banquettes, formed of small flat stones set in adobe, were on the average 40 inches above the floor; 5 feet 5 inches long on the inner edge.

Beneath the deep southern recess, at about its middle, is a square-cornered opening in the side wall of the kiva, rising 13 inches

STONE OBJECTS AND IMPLEMENTS FROM RUIN 1

from the floor level, and 13 inches wide (see pl. VI, 2). This opening leads to a tunnel, or flue, of approximately the same size, passing underneath the banquette and sloping slightly upward to its ter-

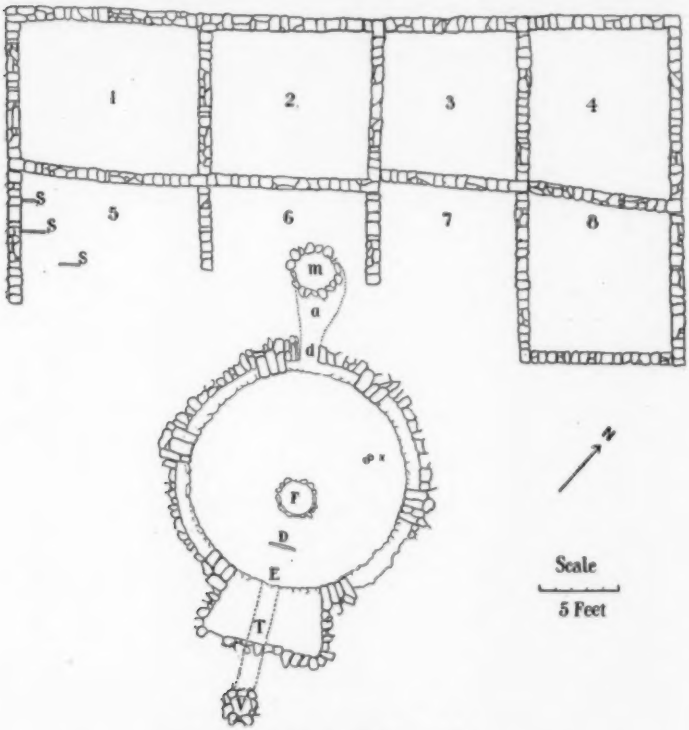


FIG. 4.—Ground-plan of Ruin No. I.

V, Perpendicular ventilator shaft. *T*, Horizontal tunnel leading from the ventilator opening, *E*, at the floor level in the kiva to the upright shaft. *D*, Deflector, or fire-screen. *F*, Fire-pit. *x*, Conjectural sipapu in the floor. *d*, Doorway at the level of the northern banquette leading from the kiva to the expanded passage, *a*, opening in the floor of Room 6 by the manhole *m*. 1–8, Rooms of the pueblo. *s*, *s*, *s*, Upright slabs set in the floor.

mination in a perpendicular flue of stone, about 15 inches in diameter and circular at its top, rising to the surface of the ground 3 feet 4 inches outside the outer wall of the deep recess (pl. VI, 3).

The floor of the horizontal portion of the tunnel is continuous with the kiva floor and is plastered with adobe. Its sides are formed of the packed earth in which the kiva is sunk, while the top was originally held in place by thin wooden cross-pieces, now largely decayed. The perpendicular portion of the passage is lined with well-laid stones. The number of these stones which had fallen into this, indicate that it had formerly risen some 18 inches above its present top at the surface of the ground. There was no smoke staining of either the tunnel or the flue of the ventilator.

This passage from the kiva to the outside corresponds in all its essential features to structures well known in these ancient circular kivas. They no doubt served, as has been shown by Fewkes,[1] as ventilators for these underground chambers, in which fires were so often burning.

About 30 inches in front of this ventilator opening stands a sandstone slab (pl. VI, 2) firmly set in the adobe floor, its stability further secured by a rough mass of clay banked about its base. This slab, the deflector or fire-screen, serving to shield the fire from the incoming air-current of the ventilator, is rounded at the top, measures about 24 inches high, 22 inches wide at the base, and from 1 to 2¼ inches thick, and is set slightly aslant.

About 18 inches inward from the deflector, toward the center of the kiva, is a circular fire-pit (pl. VI, 2) about 22 inches in diameter and 10 inches deep. This fire-pit is lined with stone and clay, rounded at the bottom, and neatly bordered at its edge by flat stones set in adobe, at the level of the floor plastering. It contained about half a bushel of ashes, among which were numerous fragments of charcoal, some more than three-fourths of an inch in diameter and showing the growth-rings of the wood, indicating that sticks of considerable size, not always twigs, were sometimes burned in the fire-pit.

On the northern wall of the kiva, where it abuts on the pueblo, was a doorway, 14 inches wide, opening from the level of the northern banquette (pl. VI, 1), the exact height of which could not

[1] Ventilators in Ceremonial Rooms, *American Anthropologist*, n. s., vol. X, 1908, p. 385.

HAND GRINDING STONES FROM RUIN 1

be determined because it was caved off at the top;[1] but its height was greater than its width, as judged by a stone slab supporting one side.

A short passage from this doorway, sloping upward under the line of the front wall of the adjacent pueblo, led to an irregular vertical cavity in the earth, bulging out northward to a diameter of about three feet (fig. 4, *a*). At the top of this cavity, and about 4½ feet above its sloping floor, was a stone-lined manhole, some 30 inches in diameter, in the floor of the south middle front room of the pueblo (pl. VI, 3, and fig. 4, *m*). This bulging passageway from the kiva to the pueblo was pecked out of the soil, was without special lining except at its entrances, and was heavily smoke-stained.

In the lower kiva wall, on the pueblo side, are three niches or recesses, of the usual type (pl. VI, 1, and pl. VII, 1). The smaller of these, beneath the northern recess, is about 6 inches square, the others about 9 inches. All of these were filled with sand and contained no artifacts.

There were no marks upon the floor or on the deeper southern banquette which would indicate the resting place of a ladder. Nor was anything found suggesting the position of an entrance, if such there were, to the kiva through the roof.

About 3 feet 6 inches northeasterly from the northern edge of the fire-pit, and about 22 inches from the wall of the kiva, are two circular depressions in the floor (pl. VII, 1). One of these is 3 inches, the other 3½ inches in diameter; each is 1¼ inches deep, with smooth symmetrical concave bottom. These pits are made in adobe, similar to that which forms most of the kiva floor, save that here, as in a few other isolated places, in the floor, some whitish chalky material is mixed with the plaster. The floor level hereabouts is otherwise intact and smooth, as are the edges of these openings, except for a slight erosion of the top of the narrow partition between them. A more highly magnified picture of these structures is seen in plate VII, 2.

In no other part of the floor of this kiva was there any other

[1] To prevent the caving in of the debris above this doorway, it was shored up with stones, as is seen in the illustrations.

indication of a sipapu. This symbolic opening from the underworld, which plays so important a part in many ceremonies of some of the modern Pueblo Indians, Dr Fewkes was first to record in the floors of some of the circular kivas of this district, and to interpret, thus developing an important link between the ancient and the modern house-builders.

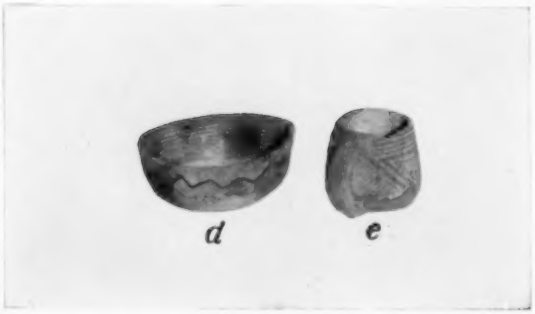
The ancient sipapu commonly consists of a circular hole in the floor, from 2½ to 4 inches in diameter, and from 4 to 10 inches deep; sometimes approximately cylindrical, sometimes bulging out, flask-like, below. The sides are usually plastered with adobe, the edges of the opening rounded, the top segment being occasionally lined with pottery. The sipapu in the old circular kivas is most frequently placed in the segment of the floor between the fire-pit and the adjacent pueblo, and is usually from 2 to 3 feet from the former. It is present in a part only of the excavated kivas of the Spruce Tree House and the Cliff Palace on the Mesa Verde, as recorded by Fewkes, and was found by Morley and by Kidder at the "Cannon-ball" ruin and on Montezuma creek, respectively.[1]

It is not yet quite clear to the writer whether these shallow but evidently carefully fashioned depressions in the floor should be regarded as atypical and unusually placed examples of this significant structure.

The outer wall of the eastern recess and its banquette were caved in. Aside from this the walls of this kiva in general were well preserved, save that the inner layers of stones at the tops of each of the pilasters had fallen forward.

The walls of the kiva were formed of a single thickness of dressed stone, laid in adobe and backing against the soil. Joints in the masonry were not broken, nor were the corners tied. The kiva had apparently been completely plastered within, though the plaster was largely in place only below the level of the banquettes. Here it formed a coating from a quarter to half an inch thick. It was for the greater part gray on the surface, without visible decoration. The fracture, in favorable places, showed many (in one place eighteen) thin bands or streaks—white, brown, yellow, gray, and

[1] Loc. cit.



POTTERY FROM RUIN 1

black—marking successive freshenings of the walls. The plaster crumbled off considerably on exposure to the air and sun.

The floor of the kiva was fairly smooth with adobe plaster, which showed several superimposed layers. In many places on the walls, as on the floor, fine rootlets, probably of the sage, which had penetrated the kiva through the top or through displacements of the masonry, formed a delicate organic pellicle between the stones or plaster and the debris, which in many instances facilitated the separation of the densely packed contents, and assisted in determining and following the level of the floor in clearing.

It would appear, from the height of the undisturbed outward tops of the pilasters, that if the roof of this kiva were constructed in the fashion common to this region,[1] the superimposed timber layers, together with the large mass of roof-mud and stones found fallen within, would have brought the level of the roof, or the roof plaza, to about that of the floors of the front rooms of the pueblo.

It is interesting to note that, from the constructional point of view, the most vulnerable parts of the masonry of this kiva were the upper inner courses of the pilasters. As the flat stones in these situations were rather larger than the average, were not tied, and the joints were not broken, the result would naturally be, as was in fact invariably the case, that when the roof fell in, or afterward in the slow processes of degradation, these front segments slipped away inward, leaving a sloping surface at the tops of the pilasters. The latter surface corresponds to the slope of the surface of the ground which so completely conceals these sole projecting parts of the masonry, after the sand and soil readjustments have filled the pits and smoothed them over into the shallow depressions which we see today. Thus the considerable depth of the wall beneath the surface, the inevitable disintegration of these inner projecting corners of the pilasters, and the inexorable sand-drift which, year after year, molds and remolds the open surfaces of this arid land, abundantly account for the general absence of surface evidence that these kiva-pits conceal elaborate stone structures.

[1] Nordenskiöld, Cliff Dwellers of the Mesa Verde, English trans., 1893, p. 57. Fewkes, *Bulletin 41, Bureau of American Ethnology*, p. 19, 1909.

THE PUEBLO

The pueblo of this Ruin No. I is about 42 feet long and 21 feet wide. It is formed (see ground-plan, fig. 4) of two rows of rooms, four rooms in each row. The walls of the back row are now standing about two feet above the surface of the ground. The rooms are, in general, from 8 to 11 feet across, but vary considerably, the two situated westerly on the back being the larger. These two rooms appear to have been built first, for their enclosing walls are continuous, while the masonry of the adjoining rooms in front and beside them is not tied to them but simply abuts upon them. The alignment of the front wall of the back row of rooms is faulty, as is shown in the ground-plan. This fault is obviously in the construction and not due to later shifting of the masonry.

The walls of the pueblo are all rather rough and not so carefully laid as are those of the kiva; those of the northern end being notably inferior to the rest (pl. VI, 3). An estimate of the original height of the walls was secured by piling the fallen stones from a measured section into a compact wall outside. This indicated that the pueblo was not more than one story in height. There was no trace of external doorways or other openings into the pueblo from the back or sides.

The front wall of three of the front tiers of rooms and the adjacent partitions (see pl. VII, 3) had largely fallen, or in the course of time had gradually slipped down into the kiva. The lower tier of stones in the front of the southeast corner room were still in place, showing that the pueblo fronted close upon the adjacent kiva wall.

One of the middle rear rooms had been partially cleared by an unknown treasure seeker, revealing within, walls of roughly dressed and carelessly laid small and irregular stones. The original plastering was mostly absent here, and the mortar largely weathered from between the stones. The three remaining rooms of the back tier were not disturbed, because this did not seem necessary for the purposes of the present study. But what was left of the front rooms was cleared.

In the room (5) lying on the southwestern side (fig. 4) were found

1. NORTHERN SIDE OF KIVA I

2. SOUTHERN SIDE AND BOTTOM OF KIVA I, SHOWING VENTILATOR, DEFLECTOR, AND FIREPIT

3. GENERAL VIEW OF RUIN 1 (AFTER CLEARING)

three upright stone slabs (*s*, *s*, *s*) set in the floor, or at about the floor level (pl. VIII, 1). While such slabs set in the side of a secular room suggest a milling outfit, neither the character nor the relationship of these would seem to justify this interpretation.

In the debris of the front rooms 7 and 8, fig. 4, at the floor level, were found the badly shattered fragments of three large corrugated pots, the largest and most complete of which was 13½ inches high and 15 inches in diameter; also one large smooth white bowl, 15 inches in diameter, with crude linear decorations in black (pl. V, *b*). Here too were found three bone awls, several hand grinding stones, much worn, and numerous fragments of the same.

The manhole leading from the pueblo to the kiva was, as has been indicated (see fig. 4, *m*, and pl. VI, 3) in the floor of room 6, the stoned opening being largely in place. Part of the top course however, as it now stands and is seen in the plate, was laid in by us in order to protect it, from stones recovered from the passage below.

THE BURIAL MOUND

This burying place, lying southeast of the ruin, its nearest border some 20 feet away, measured about 74 feet north and south, by about 55 feet east and west. Though it had been thoroughly ravaged in past years, a strip about four feet wide at the southern side was turned over to determine depth and character of the mound. Parts of four skeletons with many fragments of pottery were found, all much scattered and displaced. One adult skeleton, without trace of the skull, lay in the flexed position, without adjacent pottery. The dark earth of the mound was in some places about one foot deep; in most of the parts examined, however, it was from two to four feet in depth.

The writer was informed by Mr Walters, the former owner of the property, who had been familiar with it since he came with the early settlers into the Montezuma valley, that in early days the search for burials was made only in the mounds by prodding with a sharpened iron rod to discover the location of the flat stones which often covered the bodies. The burials were, he said, sometimes near the surface, sometimes three or four feet deep, and the bodies

were often in the flexed position. The pottery near them was mostly pots and bowls, with few animal forms. Personal ornaments were uncommon.

SUMMARY OF RUIN NO. I

This study shows that in a characteristic small ruin of the "unit type," one of a group of similar structures in the Montezuma valley, a stone-walled kiva lay beneath the shallow depression, commonly called a "reservoir," in front of the eight-roomed pueblo. That this kiva corresponded closely in structure to the ancient circular kivas already known in more complex and larger ruins of this district; namely to those in the great cliff-houses of the Mesa Verde, in the open ruins of the Yellowjacket group, and on the Montezuma creek drainage. Its size and shape; its six recesses and pilasters; the ventilator, fire-pit, and deflector; the typical niches in the northern wall, and the passageway into one of the living rooms of the adjacent pueblo—all are characteristic of kivas of this type.

The conjectural sipapu, however, differs from the usual type in form and situation, so that definite opinion as to its nature and significance may properly be reserved until further studies of similar ruins shall be made.

Although it was not at this time practicable to undertake the complete excavation of other kiva sites in ruins of this type, it was deemed desirable, by an exploratory trench here and there, to test the presumption that other similar kiva-pits also harbored buried circular recessed walls. The results of these further examinations will now be given in brief.

RUIN NO. II

A small isolated ruin, lying about 80 yards southward from No. I, is an example of a very simple form of this type, having apparently only one large room at the back, with a square-walled enclosure around it and the shallow kiva-pit which lies southward (see pl. 1, 2). A short trench was made across the latter, revealing, about two feet beneath the surface, a circular stone wall, with recesses and pilasters. Beyond the establishment of this point, the excavation here was not pursued.

1. BOTTOM AND NORTHEASTERLY SIDE OF KIVA I SHOWING NICHES AND CONJECTURAL SIPAPU

2. CONJECTURAL SIPAPU IN KIVA I

3. PUEBLO OF RUIN 1 (AFTER CLEARING)

Ruin No. III

Some 500 yards easterly from Ruin No. I, on the edge of a deep arroyo cut in the alluvial bottom by the flood waters of a short branch of the McElmo, the side of a circular kiva was exposed, to which our attention was called by previous digging at its site.

The pueblo of this kiva had been almost completely washed away in the formation of the arroyo, here about 20 feet deep and nearly 60 feet wide. There was remaining only a small fragment of what appears to be one of the corners, or one of the partition walls of an adjacent pueblo. About 10 feet of the northwestern segment of the kiva had fallen into the arroyo, and with it the corresponding part of the floor. A small portion of the floor farther in, and a narrow strip of the interior of the kiva wall on each side, had been exposed by previous visitors.

Notwithstanding its mutilated condition, we cleared this kiva because it showed on first inspection of its exposed faces some variations in structure which gave promise of interest. It was filled with fallen stones, some of them partly or roughly trimmed, and with much earth, the latter near the bottom being closely packed.

This debris contained few artifacts. There were small fragments of pottery, corrugated and smooth, with black linear decoration; a few hand grinding and pounding stones; a few fragments of turkey bones, and a bone awl.

The cleared kiva is about 12½ feet in average diameter, being however slightly unsymmetrical in contour. It has five remaining shallow stoned recesses, and the absent segment of the wall indicates the former presence of a sixth. The banquette of the southern recess (pl. IX, 2) is 2½ feet above the floor; it is 5 feet wide and 5 inches deep. The other banquettes are about 3 feet above the floor, 3 feet wide, and 4 inches deep.

The tops of the pilasters, which are about 2 feet wide, are now about 4½ feet above the floor, but are considerably disintegrated at the top. The outer walls of the recesses rise to about the level of the pilasters; but in places some of their stones, which were backed against the earth, have loosened and fallen in.

Below the banquettes the kiva wall is formed of the soil of the

alluvial bottom, reinforced here and there, but quite irregularly, by small, variously shaped but mostly flat bits of stone imbedded in the soil usually several inches apart, and forming a rough face on which the plaster is thickly laid (pl. IX, 1). This plaster layer below the banquettes was largely in place, but readily flaked and crumbled off on exposure. It was, on the average, about a quarter of an inch thick, and the fracture sections of the thickest parts showed twelve thin layers, black, white, and reddish brown. In some parts of the lower wall of the kiva the plaster was laid directly upon the earth wall of the excavation, without evidence of any artificial reinforcement or hardening of the latter.

The pilasters were laid up largely with small flat stones, while the backs of the recesses were faced with a single layer of larger rough and often rounded stones, some slightly, others not at all trimmed. The southern, longer banquette was surfaced with small flat stones set in adobe; the four others were plastered directly upon the earth. While the walls above the benches had been plastered, the coating was in most places loose, and in many sections had already peeled off and become merged in the debris.

Beneath the longer, southern recess, at the floor level, is a square opening (pl. IX, 2) 12 inches wide and 16 inches high. This was supported at the top by a much-decayed wooden slab, and led to a horizontal tunnel of about the same size as the opening, and without evidence of supporting walls other than the packed earth about it. This tunnel was followed for about 18 inches from the inner surface of the kiva wall, where all trace of it was lost. Beyond this point we found nothing indicating a perpendicular flue. But just southward of the kiva, and close to it, runs a shallow wash or sag whose bottom, it is evident, must be occasionally aflood, and has probably many times been washed out and reformed. It is therefore not surprising that a ventilator tunnel could not be followed far outside the kiva wall, nor a perpendicular flue, should such have once existed, be disclosed.

About 3 feet 4 inches in front of the ventilator opening was a rough, rather irregular wall of stones (pl. IX, 2), about 10 inches in height and thickness, and 18 inches wide. These stones were closely

1. UPRIGHT STONE SLABS IN ROOM 5, RUIN 1

2. STONE AND ADOBE BOXES IN FLOOR OF KIVA III

but irregularly piled together, and a line of similar crudely trimmed stones lay between this pile and the western side of the ventilator opening. These stones did not appear to have been placed in mortar, and if laid at all were roughly set; so that I was in the end not able to decide whether they were remnants of a masonry deflector or had fallen there in the disintegration of the kiva.

Still farther inward, 4 feet from the ventilator opening and near the center of the kiva floor, is a fire-pit (pl. IX, 2), 18 by 20 inches across at the opening, and 12 inches deep. The northern and southern sides of this were formed by flat stones set edgewise and sunk to nearly the level of the floor. The other, sloping sides of the fire-pit were formed of adobe mortar continuous at the sides with the plastering of the floor. The stones were much smoked and the pit contained a small quantity of ashes. Altogether it was crudely fashioned, the southerly slab being several inches longer than the other, giving an unsymmetrical opening.

On the westerly side of the kiva floor, about 4 inches from the wall, were two shallow inclosures, or boxes (pl. VIII, 2; IX, 2), built up of flat smooth stones, set edgewise, and adobe mortar. One was about 13 by 8 inches across, the other 13 by 11 inches. Both were about 7 inches deep, their bottoms, formed of adobe, being at about the level of the kiva floor. These small inclosures were set nearly parallel with the kiva wall, but at a slight angle with each other. The four-inch space between these boxes and the wall of the kiva was nearly filled with mortar, as was the space between them. The flat stones forming parts of the sides of the boxes were from 1 to 1½ inches thick, while the parts formed by adobe were thicker, sloping outside to the level of the floor. On both sides of these structures were rough masses of a mixture of clay and adobe, piled upon the floor against them.

The writer has no clue as to the nature and use of these objects built into the floor of this kiva, which was roughly plastered with adobe.

No sipapu was found; but it should be remembered that about one-third of the northerly segment of the floor had gone down the arroyo, or had been "investigated" by our predecessors in the field.

SUMMARY OF RUIN NO. III

It may safely be assumed that a pueblo was originally placed beside this kiva, though only a fragment of wall remains. And judging from the situation of the ruin among several others still *in situ*, scattered about this bottom land and in the group near by, it was probably of the unit type.

While the study of this kiva was necessarily incomplete, owing to its demoralized condition, it presents several exceptional features which appear to be noteworthy.

In the first place it differs from the completely excavated kiva, above described, in the crude character of its construction. The absence of a stoned wall in the lower segment of the chamber, and the plastering directly upon the earth, while the recesses and pilasters above are regularly stoned, are interesting variants.[1]

Again, while the southern recess is marked by a longer arc than are the others, it is also shallow and not much deeper, as is commonly the case in these circular kivas. Finally, the curious stone and adobe boxes set in the western floor are quite exceptional.

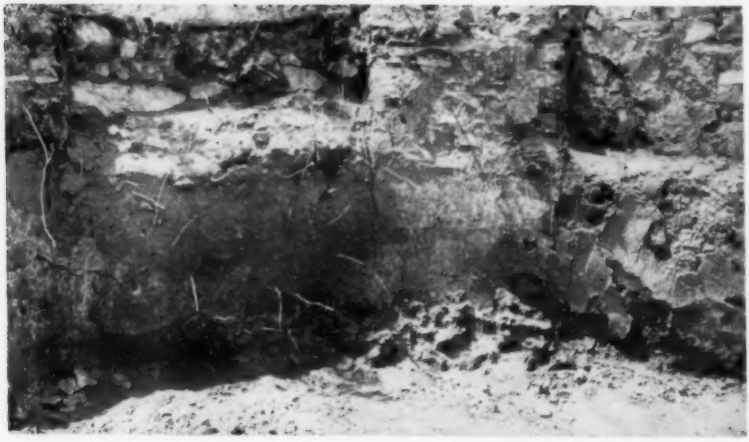
RUIN NO. IV

We now repaired to the high mesas north of the McElmo, some 35 miles westward, where we purposed to examine one small ruin of the unit type in a district more remote from the Mesa Verde, and where they are scattered at wider intervals in what seems to-day a less favorable environment—situations, in other words, which would lend to such dwellings rather the character of solitary and perhaps more primitive ranch-houses than of village homes.

We selected for our purpose a small ruin standing with one other about a hundred yards from it, on the Cohon mesa, near the head of a small eastern tributary of Cross cañon.[2]

[1] Kidder found in certain circular kivas in the Montezuma Creek region, that the lower part of the chambers and the pilasters were stoned and plastered, but that the backs of the recesses were formed by plastering directly upon the baked and hardened earth. *Jour. Archæol. Inst. Amer.*, vol. XIV, no. 3, 1910.

[2] This ruin is close to the new road to Bluff City, which leaves the Dolores-Monticello highway near the head of Sandstone cañon, and is less than half a mile from the so-called "Picket corral."



1. PILASTERS AND BANQUETTES OF KIVA III, SHOWING PLASTERING OF LOWER PORTION DIRECTLY ON THE EARTHEN WALL

2. VENTILATOR, DEFLECTOR (?), FIREPIT, AND BOXES IN FLOOR OF KIVA III

The ruin is of the double unit type, and apparently characteristic, save for a series of low walls radiating from the back of the pueblo, and similar walls forming an open court to the kivas in front.

The pueblo was 36 feet long, 17 feet wide, with two rows of rooms, and faced south. The kiva-pit which we examined lay as usual southward of the pueblo; it was about 3 feet deep at its center, with no visible trace of a circular wall. The time at our disposal permitted only partial excavation.

We found buried, about a foot below the surface of the ground, a walled circular kiva, about 16½ feet in diameter, with the pilasters and the backs of the recesses, as well as the banquettes, formed of large, roughly-dressed sandstone blocks, such as might readily have been procured at the edge of the nearby cañon.

The southerly recess was 3 feet 8 inches deep and 7 feet wide. The northerly recess, lying close against the front wall of the pueblo, was 15 inches deep and 6 feet wide, with remnants of plaster upon its ends and back and banquette. The sides of one end of this alcove were much smoked, and a mass of charred fibers and charcoal lay upon the bench with smoked masses of adobe plaster, apparently fallen from the roof.

From the level of the northern banquette, and about midway between its adjacent pilasters, a door 2 feet wide led into a sloping passage opening in the floor of one of the front rooms of the pueblo, about 5 feet from the kiva doorway. The sides of this passage were stoned for 18 inches from the kiva entrance. The top of the door and the roof of the passage had caved in.

The faces of the pilasters, four of which only were exposed, were about 30 inches wide, and the front stones of their upper layers had slipped forward into the kiva.

Only a few fragments of pottery were found in working down to the level of the benches. These were corrugated and smooth white ware with mostly linear decorations in black. The burial mound had been extensively ravaged.

We did not have time to go below the level of the benches, but this preliminary study of the Cohon Mesa mound shows that here,

too, a ruin of the unit type had a buried stone-walled kiva, with recesses, pilasters, and a pueblo entrance, which, so far as they were unearthed, were typical of the ancient circular kivas.

General Summary

This record of the study of the kiva-pits of four small ruins of the unit type in the San Juan watershed,—one completely and the others partially excavated,—shows that they all covered subterranean circular stone-walled and recessed kivas, and that the one fully examined conforms in most of its structural features to those typical circular kivas of larger ruins now known in this district, namely, pilasters, recesses, ventilator, deflector, fire-pit, niches, and door and passage into the adjacent pueblo.

While it is desirable to obtain further data bearing on the details of structure of ruins of this type, it is clear from the studies here recorded that the builder of these primitive dwelling places in the open country was not less skilful in masonry, and not less punctilious in his devotion to his traditions and his ceremonies, than was the builder of the larger defensible structures in similar localities, or those who left the still more imposing ruins in the cliffs. Whether these were contemporaries or not will remain an open question until more data shall be obtained and interpreted in the light of the vanishing lore of the modern Pueblo Indians.

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PORTRAITURE AMONG THE NORTH PACIFIC COAST TRIBES

By GEORGE T. EMMONS

THE distinguishing feature of the old villages of the Indians of the Northwest Coast was the wealth of ornamentation in carving and painting, totemic or emblematic in character, that covered the house fronts, heraldic and mortuary columns, ceremonial dress, personal ornaments, and war, hunting, fishing, and household implements. This ornamentation did not arise from mere love of ostentation, but owed its origin to the peculiar social organization and semi-religious worship of ancestry that controlled every action of the people and manifested itself in the display of the crest and the respect paid to it. The clan was the bond of union that held all together as the nearest blood relations, so its honor and rights were jealously guarded to that degree that life was freely sacrificed in its behalf. Among a highly sensitive, vain and proud people it is not difficult to understand how each clan would try to outdo its neighbors in material display, and the competition thus engendered stimulated artists and produced artisans whose originality of design and skilful handiwork may still be seen in the moss-covered carvings in the abandoned villages and in our museum collections.

Under such conditions it might reasonably be expected that from conventionalized human forms representing prominent chiefs a demand for and a desire to produce their actual likenesses as portrait busts or statues would arise, and this is confirmed by the following stories. Dr J. R. Swanton, in his *Tlingit Myths and Texts*,[1] tells of "The Image That Came to Life," as follows:

"A young chief on the Queen Charlotte islands married, and soon afterwards his wife fell ill. Then he sent around everywhere for the very best shamans. If there were a very fine shaman at a certain village

[1] *Bulletin 39, Bureau of American Ethnology.*

he would send a canoe there to bring him. None of them could help her, however, and after she had been sick for a very long time she died.

" Now the young chief felt very badly over the loss of his wife. He went from place to place after the best carvers in order to have them carve an image of his wife, but no one could make anything to look like her. All this time there was a carver in his own village who could carve much better than all the others. This man met him one day and said, ' You are going from village to village to have wood carved like your wife's face, and you can not find anyone to do it, can you? I have seen your wife a great deal walking along with you. I have never studied her face with the idea that you might want some one to carve it, but I am going to try if you will allow me.'

" Then the carver went after a piece of red cedar and began working upon it. When he was through, he went to the young chief and said, ' Now you can come along and look at it.' He had dressed it just as he used to see the young woman dressed. So the chief went with him, and, when he got inside, he saw his dead wife sitting there just as she used to look. This made him very happy, and he took it home. Then he asked the carver, ' What do I owe you for making this? ' and he replied, ' Do as you please about it.' The carver had felt sorry to see how this chief was mourning for his wife, so he said, ' It is because I felt badly for you that I made that. ' So don't pay me too much for it.' He paid the carver very well, however, both in slaves and in goods.

" Now the chief dressed this image in his wife's clothes, and her marten-skin robe. He felt that his wife had come back to him and treated the image just like her. One day, while he sat mourning very close to the image, he felt it move. His wife had also been very fond of him. At first he thought that the movement was only his imagination, yet he examined it every day, for he thought that at some time it would come to life. When he ate he always had the image close to him.

"After a while the whole village learned that he had this image and all came in to see it. Many could not believe that it was not the woman herself until they had examined it closely.

" One day, after the chief had had it for a long, long time, he examined the body and found it just like that of a human being. Still, although it was alive, it could not move or speak. Some time later, however, the image gave forth a sound from its chest like that of crackling wood, and the man knew that it was ill. When he had some one move it away from the place where it had been sitting they found a small red-cedar tree growing there on top of the flooring. They left it until it

grew to be very large, and it is because of this that cedars on the Queen Charlotte islands are so good. When people up this way look for red cedars and find a good one, they say, 'This looks like the baby of the chief's wife.'

"Every day the image of the young woman grew more like a human being, and, when they heard the story, people from villages far and near came in to look at it and at the young cedar tree growing there, at which they were very much astonished. The woman moved around very little and never got to talk, but her husband dreamed what she wanted to tell him. It was through his dreams that he knew she was talking to him."

"Father" Duncan tells the following story of "The Man With The Wooden Wife":

"At the old Tsimshian winter village of Metlakatla there lived, long ago, a man and his childless wife, who were greatly attached to each other. The husband went hunting for several days, and returning at night he found his wife sitting by the fire, which had burned low. He spoke to her, but received no reply, and when he spoke again she seemed to turn away without answering. Such conduct could only mean that in his absence she had wronged him, so he left the house, launched his canoe, and camped on the opposite shore. In the morning, as he was returning to the village, he met a canoe, and the occupants told him that his wife had died and had been cremated the evening before, so then he knew that it was only her spirit that he had seen the previous evening. He felt very sad, and wishing to remember her always as she was, he carved her image in wood with great truthfulness of features and clothed it as she had last appeared to him seated by the fire, and wherever he went in his canoe he carried it with him."

Before the advent of Europeans, when the natives had only tools of stone and shell, any such refined work as portraiture must have been too difficult of accomplishment to have proved satisfactory, but with the acquisition of iron, latent talent rapidly developed and the Victorian age of this coast was about the middle of the nineteenth century, before the contaminating influences of civilization and commercialism had paralyzed native art and artisanship. The work of this early period in wood, ivory, bone, and metal shows originality of design and accuracy of detail, but it gradually disappeared with the establishment of the Hudson's Bay Company factories and the independent trading posts along the coast, which

resulted in such strong competition in the fur-trade that the natives became independently well off, and in the comparative cheapness of our commercial products they neglected home manufactures. Following the trader came the missionary, who discouraged all social and shamanistic observances and abolished ceremonial paraphernalia. Finally the exploiting of the salmon industry and the establishment of the numerous canneries gave congenial work and a living wage to all, and taught them the value of time and modern methods, but, unfortunately, brought liquor and disease which have crippled them physically, morally, and mentally, destroying their ambition and decimating their ranks.

The accompanying illustration (fig. 5) shows, in the old and generally deserted Kitikshan village of Kitwankool, on the trail leading from Kitwangar on the Skeena to Kitlaghdamokx on the Nass, in British Columbia, what is possibly the best remaining example of a portrait figure. It consists of a comparatively rude body of wood, to which the limbs are joined by wooden dowel-pins and which in turn are jointed at the knees and elbows, so that the figure can be placed in a sitting posture and the arms arranged at will. The feet and hands are carved in one with the tibiæ and forearms. As the figure was fully clothed, the limbs are simply proportional in size, with little regard for exactness of form. The whole skill of the artist was expended on the features and expression to make them as lifelike as possible. A glance at the illustration will show with what success this was accomplished, while a comparison with the carved human faces in the rear of and above the image will show the great difference between the portrait face and the conventionalized human face of the totem-pole. The image is seated on an old trunk, which is secured, at an elevation of ten feet above the ground, to a totem-pole. The trunk contains the cremated remains of the deceased whose image is shown, and this with the figure was once partly protected by a shelter above and at each side, of which a portion only remains. Originally the figure was clothed, but time and the elements have left only shreds of the body-covering, head-dress, and ceremonial neck-ring of cedar-bark rope. As the face indicates, the deceased was a young man.

He was of the Kon-nah-da clan of the higher class, and in this manner his memory was preserved.

At the Kitikshan village of old Kitzegukela on Skeena river, about thirteen miles below Hazelton, in a typical small wooden

FIG. 5.—Effigy of a young man seated on a box containing the cremated remains of the deceased at Kitwankool, British Columbia.

grave-house, is a most lifelike image of a man who committed suicide. The body of the figure is completely clothed and has a cap on the head; it is seated in a chair on the box that contains the

cremated remains. In the right hand, with butt resting on the floor, is an old type of Hudson's Bay Company's musket; in the left hand, extended, were the bullets with which he shot himself. The carved face of cedar, which has weathered to a light-brown shade approximating the complexion of the people, is so lifelike and the pose of the figure so natural that on seeing it suddenly through the small window of the house one instinctively draws back in surprise, thinking that it is a lifeless body exposed to view.

In the Nishkar village of Aiyansh, on Nass river, I was shown a wooden figure, rude in body, with jointed limbs, but expressive in features, similar to the two figures seen among the Kitikshan. This was not exposed as a grave figure, although it might originally have been made for that purpose. The family in whose possession it was, said that it represented a chief who had been killed by the Haida about four generations before, and that at family feasts it was exhibited clothed, in memory of the dead.

These three portrait busts or images are all that I found among the Kitikshan and the Nishkar, although the people told me that some years ago there were two similar figures placed on posts, one on the old trail from Kitwankool to Nass river, and the other on the trail between Hazelton and Kisgagass, at the mouth of Babine river, at points where men had died on the trail and had been cremated.

These figures are called *kitumghun*, "man of wood," and were rare on account of their expense. They were always made with jointed limbs, so that they could be placed in different positions, but, so far as I know, were always seated. In some instances the hair of the deceased was cut off and locks thereof inserted and pegged into small holes in the head of wood. While the Tsimshian are said to have possessed such figures, no sign of them remains, as these people have wholly abandoned their primitive mode of life.

From an experience of twenty-five years among the Tlingit of Alaska I have found no evidence that this custom ever existed among them, though they placed figures of human form, representing spirits, in proximity to the grave-houses of the shamans to guard them from evil. The most realistic handiwork of the Tlingit is shown in the masks of the shaman that express sex, age, pain,

death, and many emotions with wonderful fidelity. But while the artist in his conception must have had individual faces in mind, as they too were supposed to represent spirits seen only in dreams of the practitioner, they could not be accounted as likenesses.

So far as the Haida are concerned, neither Dr Swanton nor Dr Newcombe of Victoria, who are the leading authorities on this people and the Queen Charlotte islanders, have any knowledge of separate portrait figures like those found on the Skeena and Nass rivers, except in one instance, cited by Dr Newcombe, where a chief of the village of Skidegate, on Graham island, when visiting Victoria, about 1870, was arrested, imprisoned, and fined for disorderly conduct when under the influence of liquor. Returning home, smarting under the disgrace of confinement and the pecuniary loss sustained, he conceived the idea of humiliating the court by having the image of the judge carved and placed on one of his house-posts and that of the clerk of the court on the other, so that when he or his friends passed they would speak to the figures in derision and make insulting remarks about those they were designed to represent. This, according to native law, removed the disgrace from the owner's shoulders and subjected the court to ridicule. Whether or not these figures expressed exactness of feature, I cannot say. Unquestionably they were made as nearly recognizable as possible, and I understand that they exhibited a striking resem-

FIG. 6.—Ceremonial head-dress mask representing the bust of the deceased daughter of a Haida chief.

blance, but their identification was made more certain by the carved drapery representing the long black frock-coat and high hat of the judge, and the peaked cap of the clerk.

FIG. 7.—Skoolkah's house and totem-pole, Howkan, Alaska, 1888.

Possible instances in two carved wood head-dress masks in the United States National Museum show female faces wonderfully realistic and individual in feature and expression. Both of these are of Haida workmanship. One (fig. 6) presents the bust of a young girl naturally posed and dressed in the style of a generation ago; it is said to represent the favorite daughter of a Haida chief whose untimely death so saddened the father that he had her image carved in this manner in order that he might wear it on ceremonial occasions on the front of his head-dress. The other mask (pl. x), which is attached to the ceremonial head-dress, presents likewise the face of a young girl, named Soodatl, the daughter of a Skidegate chief. The face is ornamentally inlaid with small rectangles of the much-prized blue-green haliotis shell in imitation of the old custom, which prevailed among the higher classes, of sticking on the face, with spruce-gum, such small sections of this shell. These two carvings occurring on this type of family head-dress are remarkable, as the ornamentation of the wooden mask is invariably

PORTRAIT MASK OF SOODATL, DAUGHTER OF A SKIDEGATE CHIEF

totemic in character, representing the clan crest and generally in animal design.

The many human figures that appear on totem-poles, mortuary columns, and house-posts must be wholly dissociated from portrait figures. These, whether representing mythical heroes or individuals known to the villagers at the time of their execution, are conventionalized forms, and while typically correct are expressionless and show no attempt to specialize particular features. Their identification or recognition depends wholly on their position, context, or association with crest or other figures.

In the Haida village of Howkan, on Prince of Wales island, is still preserved the totem-pole of Chief Skoolkah, upon which is represented the uniformed figure, with a long beard, of a military official of Sitka who had extended some kindness to a former member of this family (fig. 7). The beard and uniform identify the white man and the official. No attempt at a likeness could have been attempted, as the artist, who lived at a later period, could hardly have seen his subject.

In painting and weaving portraiture was never attempted by the Northwest Coast tribes. Foreshortening and shading were neither understood nor practised, and human figures were seldom employed except as grotesque forms on the shaman's dress. Animal forms predominated and were either realistic in outline or else highly conventionalized, exaggerated, dissected, or separated to that degree that they are unintelligible to the present generation.

PRINCETON, NEW JERSEY

NOTES ON THE PLAINS CREE

By ALANSON SKINNER

THE following data on the Plains Cree were gathered during June, 1913, on the Keewistaihau reserve and adjacent reservations under the Round Lake agency, Saskatchewan. The writer's object in visiting this, one of the more easterly bands of Plains Cree, was to obtain information on their military organization for the American Museum of Natural History. The notes here presented were taken during lulls in the regular work, which was itself carried on vicariously, owing to the exceedingly restless habits of the Cree, who could not be induced to refrain from roving about. The rest of the material collected, including a brief description of the Sun dance and about a score of myths and stories, mainly concerning the culture hero, will some time be published by the American Museum of Natural History. As the writer does not expect to go among the Plains Cree again, at least in the near future, these notes are offered with the permission of the Museum merely that they may be placed on record, as even brief and fragmentary information often proves of value to the student.

The principal informants were Four Clouds, Spotted One, Assiniboine, God's Head, God's Child, Neil Sâwûstim, and Jacob and Andrew Bear. The Miss Paget referred to is Amelia M. Paget, author of *People of the Plains*.

Giving of Names.—While a child is still young it is customary for the parents to call upon four old men and to ask them to give it a name. This is done when the child is about one year old. The parents gather a quantity of clothing and other presents, and a lot of food; then four old men, whom the parents have selected because of their fame for powerful dreams and for their war exploits, are invited by a runner who bears them tobacco and a pipe. Each tries to dream from then on, and when the appointed day arrives, the four men appear at the spot designated, where the parents have

prepared a feast and where other guests are assembled. When all is in readiness, a pipe is filled and given to the spokesman of the elders, who rises and addresses the people. He tells them of whom or what he has been dreaming, and gives the infant a name that has some reference to his visions or to one of his adventures in war. He then turns to his three assistants and afterward to the people in general, asking each to repeat the name aloud and to call upon the namer's dream guardian to bless the child.

After this there is a feast, for which each person has brought his or her own dish and spoon. Any of the viands that cannot be eaten are taken home by the guests, as they are partly sacred and may not be thrown away.

In former times it was taboo to ask a man directly for his name, although it is now done very freely. The only time a man ever mentioned his own name was when he had done a brave deed. On such an occasion he might repeat the story of his exploit to his friends, crying, for instance, "I am Kiwistaihau, and that is the way I am accustomed to do!"

Sometimes a child was sickly, and the doctor on investigation would dream that it was wrongly named, and prescribe a change. If the diagnosis was correct, the child would recover in from a day to four days, and all was well.

In *People of the Plains* (pp. 9–12) Miss Paget gives some data on naming customs which I could not get corroborated at the Crooked Lake reserves, but which seem to refer to the Saulteaux, and not to the Cree.

Menstrual Taboo.—The law insisting on the isolation of women during their monthly periods is by no means so strong among the Plains Cree, or among the Saulteaux for that matter, as among the Central Algonkin. When a girl undergoes her first menses she is tabooed from society for a period of ten days. During subsequent menstrual periods she is not obliged to leave the family lodge, but only to eat from her own dishes and spoons during this time, except in the case of those who are the wives of the keepers of important medicines. Such women are obliged to camp by themselves.

Menstruating women might not scratch their heads save with a stick. They wore their hair loose and were forbidden to comb it or to wash for four days. Four Clouds knew of one man who for some reason had a personal taboo against head-scratching with his fingers, and always carried a stick for the purpose.

Dream Fasting.—When a child, regardless of sex, approaches or reaches the age of puberty, it is given a course of training to inure it to the hardships of the puberty fast. The youngster is made to

FIG. 8.—Cree tipis, one showing anthropomorphic thunderbird, the dream guardian of the owner. Ceremonial lodge frame at the left.

take off all his clothing and wander naked in the bush without food or drink for a period of from one day to two days, and so on. When the time is come he is sent out naked into the bush; in the case of boys the entire body is painted white, or the face only is daubed with yellow ochre. The child is expected to build a little shelter of boughs, and there to await a dream of revelation.

These dreams, it is said, are about animals of any sort, rather than about the gods, as among the Menomini, but owing to a strict taboo against telling these dreams which prevails among the Plains

Cree, as well as among the members of the eastern division of that people, no examples were collected. The Plains Cree men were accustomed to fast a number of times during their lives for further revelation. These fasts sometimes lasted as long as ten days.

Four Clouds said that the first time his father was put to the test in his early training before the great fast, his grandfather sent one of the old men of the band a pipe and some goods which he requested the old man to "throw away". The ancient assented and accepted the pipe to pray for the lad. Four Cloud's grandfather then stripped the boy, although it was in midwinter, painted him from head to foot with white clay, and sent him to the top of a high hill. The little fellow stayed out some time but felt the cold only a very little. When he returned the old man to whom the presents had been given smoked a prayer to the gods.

FIG. 9.—A sacrifice of blankets, broadcloth, etc., to a man's guardian spirit.

The Plains Cree calls his dream guardian his "grandfather" and paints it on his tent more prominently than anything else. Judging by the figures seen on tipis, the Thunder, in semi-human or entirely bird form, is an object frequently dreamed of (fig. 8). Sexual intercourse is forbidden to anyone prior to attempting to dream, either before the puberty fast or later in life, and it is also tabooed to those about to attend a ceremony or go to war. Sacrifices of valuables are made to dream guardians to secure their good will (fig. 9).

Marriage Customs.—With one exception all the Indians inter-

viewed said that there were no marital restrictions, except for members of the immediate family closer than what we call first cousins. Neil Sâwûstim alone declared that in ancient times the bands were exogamous, at least as a rule. Attempts to find the truth by collecting data on individual marriages failed to show anything worthy of note, for the Cree have not followed any such rule from the time they began to live on reserves thirty or more years ago, and in the majority of cases the old men have younger wives taken from their own bands since they have lived on the reserve. Four Clouds' wife came from another reserve, but the occasion was quite by accident; he happened to meet her while visiting there. Inasmuch as the Plains Cree deny that they have the gentile system in any form, although recognizing its existence among the Saulteaux, it seems possible that there may never have been any definite marriage restrictions. Polygyny was practised, but has long been given up. Four Clouds' father had seven wives.

The marriage procedure was simple—a youth simply asked the girl's father for her, or a man desiring to have a youth for his son-in-law would send his daughter to the young man's tipi with a suit of clothes of her own make. There was no feast or further ceremony. A man went to live with his parents-in-law after marriage.

If a man murdered his wife through jealousy, as sometimes happened, he had to pay eight horses to his wife's relatives, or, if he could not afford this, he might flee alone on the warpath, kill one of the foe, and return to paint the faces of his parents-in-law with charcoal. They might then spare him. Eight horses, or an enemy's scalp, constituted the usual blood-money demanded by the parents of any murdered person.

Parent-in-Law Taboo.—The taboo against a man speaking to his father-in-law or mother-in-law was formerly very rigidly enforced. When the son-in-law lived in the same lodge with his wife's parents, as often happened, a partition was put up to separate him from the others. This was often observed by Jacob Bear when he was a buffalo hunter. If a man wished to ask a question of his mother-in-law, he would inform his wife and then leave the tent. She on her part would not speak to her mother until her

husband was gone. The father-in-law taboo was in force, but not so strongly. I have frequently heard Indians about the Round Lake mission say of individuals, "Why, he is like a half-breed; he talks to his mother-in-law."

There was one occasion, however, when a man might speak to his parents-in-law. When he returned from a successful war excursion, he went directly to them, with his face blackened with charcoal, told them what he had done, gave them part or all of his spoils, and then blackened their faces, beginning with his father-in-law. This was a great honor to them. The taboo was never entirely lifted.

The joking-relationship is said not to exist.

Terms of Relationship.—The following terms are recorded:

n'gawi or *nimama*	my mother
n'tosis	my mother's sister
n'ókomis or *notawis*	my mother's brother
n'gosis or (wrong way) *n'danis*	my mother's sister's daughter
nicis	my father's brother
	my father-in-law (man or woman speaking)
n't'êkwatim	my father's brother's son
	my sister's or brother's son-in-law
nicimis	my father's brother's daughter
notawi or *nipapa*	my father
nigawis	my father's sister
nictic (or, not so good) *nijoam*	my elder brother
ni'cim	my younger brother
	my younger sister
ninos'um	my mother's or father's father
nokûm	my mother's or father's mother
ni'wikimagûn	my wife
niwû	
nin'apim	my husband
ni'mîs	my elder sister
ni'cikwas	my mother-in-law
nitistawa	relation of parents-in-law to each other
nisis	my mother's sister's husband
n'dosis	my mother's brother's wife
nictau	my brother's wife's brother
nitawu'emau	my brother-in-law's wife
nitciwana	my sister-in-law's husband

nictau	my sister's husband (man speaking)
niti'm	my sister's husband (woman speaking)
	my brother's wife (man or woman speaking)
	my brother's wife's sister (woman speaking)
ninahacim	my son-in-law
nictim	my daughter
ninahaganickwim	my daughter-in-law

Burial Customs.—Among the Plains Cree bands assembled at the Crooked Lake agency, scaffold burial is not practised, and according to all of our informants it never has been. The funeral ceremonies are as follows:

When a person dies the body is arrayed in all his best clothes. It is carried out through the side or back of the tent, the walls being raised for that purpose. As the body is taken out an old man especially invited for the purpose begins to count his coups, giving the proceeds of his past successful raids to the soul of the dead for use on its journey to the hereafter. This, as will be observed, is a modification of the typical Central Algonkin ceremony. The address to the corpse is somewhat as follows:

"I went to war at such a time, I want to tell you. I took [so many] horses, and you shall ride on the best one of them. At [such a place] I killed [so-and-so]; he will go with you and guide you and light your fires. I took meat and provisions from a lodge [in such a place]; have that for your sustenance."

There are said to be only two men now living under this agency (1913) qualified to perform this rite. They are Big Head and Spotted One.

From the head of the body of an old person a little hair is sometimes cut off and saved. It is asked from time to time to give the survivors a blessing. In the old days when a man was a member of the Mitéwin, the hair was eventually taken to the grave, the contents of the medicine-bag of the deceased was poured over it, and it was buried. The placing of the hair in a bundle to be kept by the chief mourner, as practised by the Central tribes, was not followed.

The grave is made small and lined with blankets. The body is placed in it, upright, with legs drawn up, and with it are placed

all personal property, a fact which accounts for the extreme rarity of antique articles among these Cree. A pipe and tobacco are always included, so that when the soul of the deceased reaches the other land it can give the ruler a smoke, saying, "My friends that I have left behind are forlorn; I pray you give them good fortune."

When the body has been deposited in the grave, sticks are placed over it to prevent the earth from touching it, and these are covered with a blanket, skin, or robe, and the hole is filled in. Over it is erected a little canvas-covered tent roof, somewhat similar to the grave-houses of the Saulteaux and the Central Algonkin, but lacking the hole for egress of the spirit, and such of the deceased person's effects as cannot be placed in the grave are piled outside. The Reverend Dr Hugh Mackay informs me that large sacrifices of cloth were heaped on Loud Voice's grave, and Jacob Bear adds that his gun, bow, and pipe were also left outside.

When the interment is completed, the mourners blacken their faces, loosen their hair, and attire themselves in rags. They slash their forearms and calves, and some even slash their horses. The period of mourning lasts for two years or less, but widows especially mourn for the longer time. The four nights' fire by the grave, so commonly lighted by the Central peoples, is not made by the Plains Cree.

When the mourners return from the grave, a feast is celebrated, and each person present offers a spoonful of food to the dead. One year later the *Wikokeo*, or Feast of the Dead, is celebrated at the grave. If the deceased was a child, only children would be invited by the mourners, and so on. Old men, the elders of the tribe, were called on to offer food or pipes to the dead at long intervals thereafter.

Years ago, while trading with a band of Plains Cree far out on the northern prairie, Jacob Bear attended a "pagan" burial. He gave the following account of what he saw:

> "When the child died, a small hole was dug out on the prairie. An old man was called to the tipi where the body lay, to talk, and when there he counted his coups, saying, 'Those that I have killed will accompany you to the hereafter and make your camps for you.' When he had finished, the body was taken out through the side of the tent

amid great wailing, and was carried to the grave, where it was caused to sit upright, was wrapped in dressed skins, and lowered into the hole, which was only a few feet deep. All its toys and utensils were placed about it; a roof of sticks was made over it. The child's parents cut off a lock of its hair and cut off all their own just at the ears, as a sign of mourning. They put their hair in the grave with the body. They cut their arms and legs with a flint or a knife, and rubbed charcoal on their faces. Then the grave was filled, and the funeral was over."

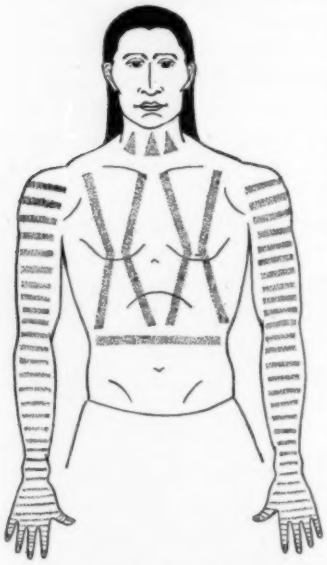

FIG. 10.—Tattooing of Plains Cree. From a native sketch by S. Ichikawa.

Jacob Bear added that when a man died his clothing was given away, and new garments furnished for the corpse. His tent was also given away. When a woman died her husband lost his tent in this fashion, but the people furnished him with a new one, something which was not done for a widow. Dr Mackay says that whenever a prominent man dies the Indians cease using the camping place where the death occurred.

Souls.—There are two kinds of souls, one, the *tcipai*, which stays behind with the corpse in the grave, and another the *niukaneo*, which goes to the hereafter. The first, when seen, resembles blue fire; it is the sort that haunts folks. The second can sometimes be heard to cry out; it whistles like a gopher (a small burrowing rodent of the prairie that has a shrill call). When the northern lights are seen the Cree think them the spirits dancing in the hereafter.

Tattooing.—Many men were tattooed in the old days—some because they dreamed they should be, others because their wives urged them to do so and show their bravery. The design usually

employed was sketched in part and described by Four Clouds as below. Jacob Bear has seen many also. The whole body was covered (fig. 10), but the neck was the most painful place to mark. Only certain persons might do the work, and they obtained the right through dreams. A man who desired to be thus marked had to fee the tattooer well unless he dreamed that he must be tattooed, in which case the work was done free of charge. Women were slightly marked on the face for the sake of ornament (fig. 11).

FIG. 11.—Facial tattooing of woman. Drawing by S. Ichikawa.

The man desiring to be decorated comes to the dreamer and gives him tobacco. He receives it, and in return sings a song asking mercy of the spirit powers and help from doing wrong. The dreamer then burns the tobacco and points his pipestem downward, toward the region from which the powers sprang. The patient then lies down, and the dreamer commences to operate with eight needles fastened together. As he works he sings "*Musinuwhagé yé eh*", etc.

The patient writhed under the torture, and some young men fainted or cried out that they could not stand it. It was customary, when it was obvious that the youth was about to succumb, to call hi sweetheart to sit beside him and so shame him into bearing the pain bravely before her. When the operation was finished, medicine to allay the inflammation was put on like a poultice and held down by a cover made from the hard smoked part of the skin tipi.

Mitéwin, or Medicine Lodge Society.—There were four degrees in the *Mitéwin*, members of each of which were distinguished by their facial painting, the design of which had some relation to their knowledge of medicines.

Birchbark records holding the songs and rituals were kept. It is said that these birchbarks had the figures of animals drawn upon them.

Medicine-bags were made preferably of otter, mink, or weasel skin, although some of snake-skin were used. Bear-skin bags were regarded as evil.

A week was devoted to praying and fasting before the ceremony was held. Then the lodge was erected. Old people joined because they were instructed to do so in their dreams, young persons in order to be cured of illness. A person who had thus joined the society was a member during the remainder of his life.

After the week of preparation (the Central Algonkin devote only four days to this purpose), the last day is spent in supplication to the gods. The Cree at Round Lake denied any knowledge of the origin of the society, adding that their Saulteaux friends attributed it not to Nänibozhu but to the "Great Spirit". The Cree said the songs of the society came from *K'ce Manitu*. It is said that it no longer exists at Round Lake, as all the members are dead. The few who still know anything about the lodge have no birchbark writings with which to keep record.

Wábanowin.—The *Wábanowin* performers were accustomed to plunge their hands into kettles of boiling water and remove objects without injury to themselves. They could take things from the fire, because they were protected by medicines which they rubbed on their bodies. Sometimes one of these shamans would swallow a red-painted or notched stick a couple of feet long; again an empty revolver would be gulped down and then brought up loaded.

Conjurors.—The order known to the Ojibwa as *Nibikēd*, or *Jesakēd*, existed also among the Plains Cree. The performer was bound tightly hand and foot, and placed in a little tightly made lodge, which he caused to shake while he prophesied. Doctors used to drive away evil spirits with noises. One famous man had the skull of his grandfather, who was a celebrated physician, to aid him in his work. Prayer was much used.

Medicines.—Jacob Bear was once overcome by the medicine-doll love-charm. A woman secured him for intercourse during broad daylight. He was unconscious of what he was doing. Afterward friends cured him. They cut the hair on his crown and both temples, and applied medicines.

Jacob Bear says the Plains Cree have many powerful love-medicines which other Indians buy from them. There is also a medicine which is tied to a tree-top to make people crazy as it

sways in the breeze. This "crazy medicine" (also known to the Menomini) consisted of a hair, a bit of nail-paring, or even some small shreds of the victim's garment that had been secretly procured by a malignant sorcerer. The medicine was suspended from the branch, and the more the wind blew the more the medicine danced and the crazier the victim became.

War Exploits and Medicines.—Once Loud Voice was in a hole fighting, while the others were loading guns. Loud Voice was hit on the head and fell down but was not killed. Then he took bow and arrow and shot an enemy. He was saved by the potency of his medicine.

Buffalo-hoofs, or rather dew-claws, were worn on the garments to deflect bullets magically.

Archeological Data Bearing on Material Culture.—According to Spotted One, Four Clouds, and Jacob Bear, arrowpoints were formerly made of moose-bone. Stone points were picked up, but never made. In fact, they were thought to have been manufactured by the *Memegwêciwûg*, or Water Dwarfs. Four Clouds corroborated this statement, and added that his people found stone knives already made or else were obliged to utilize sharp-edged natural stones. Elk-antler tines were hollowed out and used to point arrows.

Clay kettles were said to have been used, but no one remembers how they were made. Some have been found, it is said, on old camp-grounds.

Three kinds of grooved clubs, or hammers, were used. There was a large, heavy type for crushing bones, a smaller variety of the same form for pemmican pounding, and a pointed one for use as a weapon.

Acting on these suggestions, the writer examined the northern bank of the Qu'Appelle river near the eastern end of Round lake, looking over the plowed fields about the Indian school. These fields are known to have been old Cree camping sites, and here, after a tedious search, were found flint chips, stone arrowpoints of both the stemmed and triangular types, a pointed grooved war-club head of stone, and numerous tiny potsherds. A large grooved maul for bone crushing, found by the Rev. Dr Hugh Mackay on the

same fields, was kindly presented by the finder, and a small pemmican maul found on another site was presented by a Cree Indian, Neil Sâwûstim. Other pemmican hammers seen came from the fields searched by the writer. Mr Boyer, clerk at Round Lake agency, has a fine large grooved axe found nearby.

The natural assumption is that these objects are prehistoric Plains Cree relics, as all tally with Cree accounts, except the stone points, and articles of this kind are known to have been made by the Eastern Cree.[1]

Games.—The following list of games was obtained from Four Clouds, Jacob Bear, and Neil Sâwûstim:

Bow-and-Arrow Games.—Trials of skill between youths, each playing with a partner, were common. The players, to the number of four to six or more, would first construct a mound about three feet high. In this they set up a stick which formed the mark at which they shot with bow and arrows. The winners took the losing arrows after each trial.

The hand arrow game (*tcimatatowu*) consisted of the same arrangement of the mark, the same number of players, and the same rules as for the bow-and-arrow game, but the men threw the arrows by hand instead of using the bow.

The men played a variety of shinny called *pagatuwewin*, which seems to have taken the place of lacrosse. A crooked stick was used instead of a racquet, but the goals and the ball resembled those in vogue in lacrosse.

The typical women's shinny game with the double ball was known. The opposing sides were small, usually numbering only four or five players each.

Hand ball was played by the women, and, at present at least, a crude sort of football is played by the youths.

The bowl and dice game, called *pugetewin*, was much played.

The game of moccasin (hiding a bullet in one of a row of moccasins) was in vogue until recently.

Guessing in which hand a rival held a little stick, was called the

[1] See Skinner, Notes on the Eastern Cree and Northern Saulteaux, *Anthr. Papers Amer. Mus. Nat. Hist.*, vol. IX, pp. 24, 52.

"hand game". The players, as in the moccasin game, resorted to every contortion and artifice to deceive one another.

In the stick game a bundle of little sticks was divided into odd and even numbers by one player while the other tried to guess which hand held the odd number. Whichever side first successfully guessed four times, won the game. There were two on each side, and one always held the odd number and his partner the even. The game was called *tipaskwunamatuwin*.

The cup-and-pin game was played with buffalo dew-claws strung on a thong and caught on a bone pin. It was called *napawhanûk*.

Snow-snake (*sosiman*) was played. The "snakes" were made of wood and were about three feet long. The head-end was fended by a bit of the horn cut from a two-year-old buffalo bull, as such bulls furnished the sharpest and straightest horns. The stick was greased before casting, to make it slide better.

Whipping tops made of stone or the tips of buffalo horns were beaten on the ice by the boys.

Paints.—The favorite paints in olden times were derived from clays found in cutbanks. White, yellow, red, and black were the colors usually obtained. The pigment was collected, pulverized, mixed with water, and formed into little cakes which were baked in a fire made from buffalo dung until they were red-hot. They were then removed and cooled, and afterward were kept in small bags. When wanted for use, a portion was scraped off the cake and mixed with hot grease.

Fire-making.—The bow-drill was commonly used to produce fire. Oak was the best wood for the shaft; the base was generally of cedar, but sometimes other wood was employed. When a spark was generated it was caught in a bit of punk. It is said that sometimes, when fire was needed and no bow-drill was to be had, two sticks were rubbed together until a spark was produced.

Cooking.—Cooking in a bark vessel was not known to or practised by the Plains Cree, but stone-boiling was commonly done by both men and women. A hole was dug about two feet in depth and a foot in circumference, and lined with a bit of fresh rawhide or a buffalo's

stomach, which was pegged down with wooden pins about the rim of the hole. Water was poured in, then meat and blood were thrown in. Hot stones were now brought from a fire near by and dropped into this improvised kettle. In this fashion the meat was soon cooked. In ancient days pottery vessels are said to have been used, but no one now knows how they were made.

Meat was often roasted on a spit before the fire, or it might be wrapped in a buffalo tripe and thrown into the embers, where it was kept until roasted.

Pemmican was made by cutting buffalo meat into long thin steaks and drying them first in the sun, then on a rack or scaffold over a slow but hot fire of buffalo-chips. The dry meat was then placed in a buffalo rawhide, over which another was laid and beaten upon with a flat stone or a stone hammer, or later with a wooden flail. When sufficiently macerated, the meat was mixed with melted buffalo lard, and sometimes with dried saskatoon berries as a relish. The resultant compound was allowed to cool, when it was sewn up in rawhide bags to keep for future use. Pemmican thus preserved is said to have lasted indefinitely. Parfleches were rarely, if ever, used by these Plains Cree; although they knew of them, they preferred rawhide bags.

When lost on the plains in winter, and in need of water, the old people were not always able to obtain wood to melt snow, hence it was customary to fill a kettle with snow and carry it under the blanket next to the body until it melted.

Visitors were always invited to sit in the rear of the lodge in former times, and food was brought to them at once.

Tanning.—When an animal of the deer kind, or a buffalo, had been killed, and the Indians wished to make its skin into leather for clothing or tent covering, the beast was flayed and its skin hung on a branch or a frame, and cleansed of flesh by means of a serrated chisel-like scraper of the forest type. In olden times such scrapers were made from the shinbone of a moose or a buffalo, and were provided with wrist braces of thong. If the skin to be treated was a buffalo hide, it was next stretched and pegged to the ground, and the hair removed by means of a hoe scraper with an

elkhorn or wooden handle. If it was a light deerskin it was thrown over a smoothed log, obliquely set up, and the beaming tool was brought to bear. Next the skin was greased and heated slightly, and deer or buffalo liver and brains, mixed to form a tanning fluid, were rubbed in and the skin left in this state all night. In the morning the tanning fluid was scraped off and the skin worked on a string attached vertically to a post until it was flexible; then it was pulled and dried. The process was now finished, but for moccasin leather or tenting it still had to be smoked. To accomplish this the skin was sewed in a bag; reversed, the bottom slung from an inclined stick or a tripod, and the top pegged down about a little hole in which a punk-wood fire burned. In winter, when it was impossible to dig a hole, the punk fire was made in a kettle suspended under the inverted bag.

Bows, Arrow-straighteners.—For the manufacture of bows the preferred materials were oak or cherry wood. When the bow was shaped, a green hide was boiled for a long time until it was of glue-like consistency. It was then taken and fitted to the back of the bow and tied firmly in place with sinew. Sometimes a snake-skin was pulled over the bow to ornament and protect it.

The bowstring was made of sinew from the back or shoulder of the buffalo. It was moistened in the mouth, divided into three strands, and twisted into cord by rolling on the thigh with the palm. It was then dried, stretched, and straightened before it was ready for use. Stronger ropes were made for other purposes with four strands of sinew.

To straighten warped arrowshafts, buffalo ribs perforated in the middle were used. Buffalo-rib or antler bows, etc., were unknown to the Plains Cree.

Buffalo Robes.—Buffalo robes were fleshed and reduced to a desired thickness with the bone scraper, then further reduced with the hoe scraper. After being dried, greased, soaked in brain and liver fluid, and scraped, they were ready for use.[1]

Tents; Women's Celebration.—Tents were made of twenty or

[1] Miss Paget's book, op. cit., p. 72 et seq., has an interesting account of these processes.

more hides, and while manufactured by women were always the property of the men. When a woman had finished a sufficient number of skins for making a tent, she asked her friends to help cut and sew them. There were very few women who could cut the skins properly, so one woman was especially invited to perform this task, and she presided in a way. The invitations were in the

FIG. 12.—Cree camp.

form of tobacco and a pipe sent by a runner, and before the work was commenced a pipe was offered to the "Great Spirit" that his benediction on the work and workers would be given. A feast was held in conclusion, but no men were present. There was no dancing.[1]

The man painted the tents. The principal figure used in the ornamentation was the man's dream guardian. Minor figures were various gods or potent spiritual powers, and in old days coups and ornamental figures. Buffalo horns were painted over the door opening to keep away malevolent spirits. Back-rests were used only in the soldier tents.

[1] See Miss Paget, op. cit., p. 94.

The lodge had a three-pole foundation and a small elliptical door opening, with raised threshold, which was covered with a skin flap of the same shape but larger, and was weighted with a wooden binding. The smoke-flaps had the poles attached through sockets. The principal parts of the tipi are as follows (see fig. 13):

A. *Weskwatemûk*, guests' place. Place for medicine at night.

B. Place outside for medicine tripod during the day.

C. *Skuteokan*, fireplace.

D–D. *Pinutakgam*, the opposite sides, used by the occupants.

E. *Iskwatem*, or entrance.

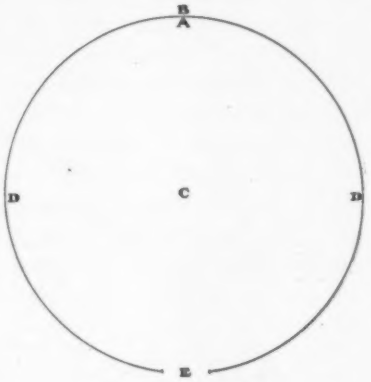

FIG. 13.—Plan of lodge.

Dog Sledges and Harness.—Dog sledges were much used in winter. These were made like toboggans, and the dogs, three or four in number, were hitched tandem. Each dog was harnessed with a collar made of wood wrapped with long grass and covered with buffalo leather. The traces extended through these collars and were attached to the leader's collar. The leader was selected for its superior speed and intelligence. Dogs were preferred to horses because they could follow a trail, even during a blinding blizzard, and needed to be fed only once a day.

Shields.—Shields were always made of iron in Four Clouds' recollection, but covered with a soft leathern case fringed with eagle quills and weasel skins, and with a band of these ornaments stretched horizontally across it (fig. 14). A man always emblazoned his shield with bars in black, red, or yellow, indicating his exploits in war. If the owner had been a peacemaker, he added the appropriate number of crosses, one for each occasion on which he rendered peaceful service. The shield was hung from the neck by means of a leather strap. This reference to iron shields does not agree

with the account of Spotted One, who says they were made of bull-hide stretched with a stick bent and sewn round the edge, and provided with thongs crossed over the back to facilitate holding.

Qu'Appelle River.—This stream is designated *Katépoisipi*, "Calling river", because the Indians used to call all kinds of game there.

Poison.—A man suspected of poisoning an enemy was tried by the chief and his councillors, and if found guilty he was executed.

Grace for food.—I have repeatedly seen the old men hold a dish up and pray before eating.

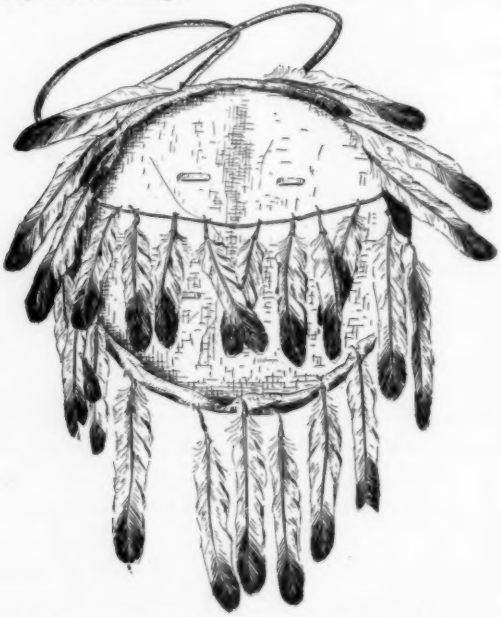

FIG. 14.—Cree shield. Restored from description.

Bags.—Small bags of buffalo-calf skin were seen. These were used for the storage of medicines. A Saulteaux specimen was obtained, made of the foot skins of a buffalo calf. Woven bags of bark fiber were formerly made.

River crossing.—The bullboat and the bark canoe were not used, but Jacob Bear said he and his companions made rafts to cross the

Missouri and ferry over sledges and meat. Such rafts were made by cutting two large logs of equal length for the sides and lashing others to them crosswise. Sometimes the Indians merely lashed two logs together and paddled across. They twisted long grass together to make the ropes for this purpose. Canoes were made by sewing two buffalo hides over a boat-shaped frame; these were for descending the stream.

Months and Seasons.—January, *Otcestuwicikauu-picim*, Kissing month; February, *Megisuwi-picim*, Eagle month; March, *Niski-picim*, Geese month; April, *Aiiki-picim*, Frog month; May, *Sägibukau-picim*, Leaves coming out; June, *Opineauwéwi-picim*, Egg month; July, *Upaskuwi-picim*, Molting month; August, *Uskauhu-picim*, Rutting month; September, *Tûkwagi-picim*, Fall; October, *Kuskutnu-picim*, Frost everything; November, *Pauwatcitcukinasis-picim*; December, *Pauwatukinum-picim*.

Sikwûn, spring; *tûkwagin*, fall; *pipun*, winter; *nipin*, summer.

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FIG. 15.—Cree youths.

THE MAYA ZODIAC AT ACANCEH

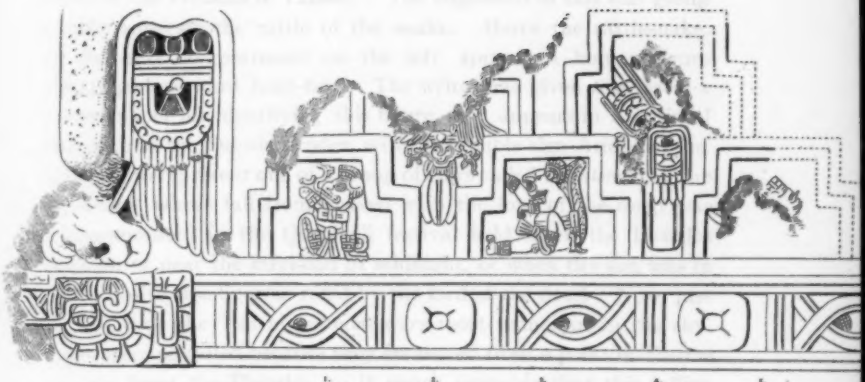
By STANSBURY HAGAR

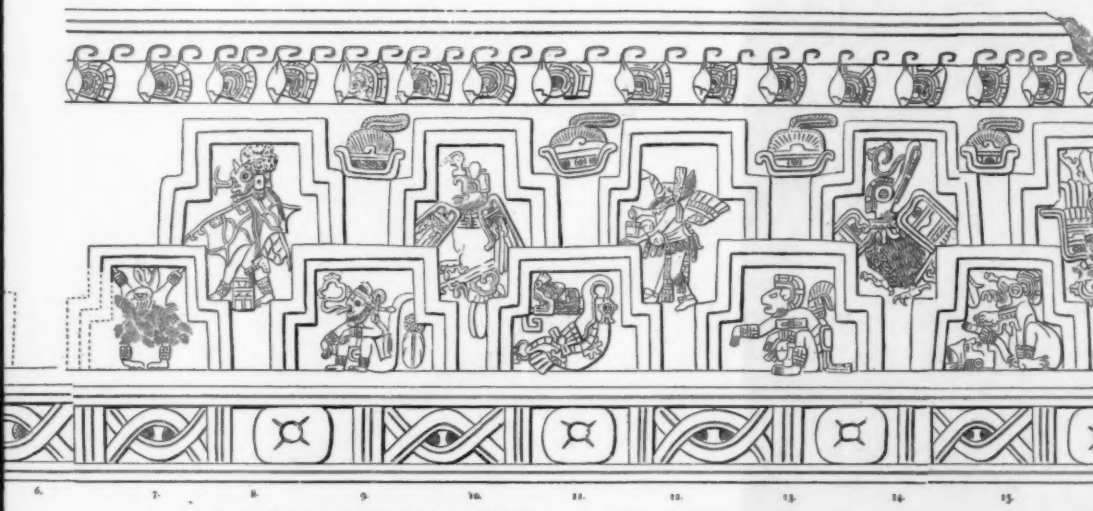
A FEW years ago a wall about forty feet in length and covered with figures in stucco was discovered on the northern side of a mound at Acanceh, Yucatan, one hour's rail journey westward from Mérida. The place was visited and studied by Maler, Miss Adela C. Breton, and Professor and Madame Seler. Photographs of the figures taken by the first and last named visitors are reproduced, with a carefully prepared drawing of the entire wall, in Professor Seler's paper on the subject. Miss Breton has drawn the figures in color and has also published a brief description of the remains.[1] Mrs James of Mérida has also visited and photographed them.

The inscription is divided horizontally into three parts. In the top band there is a series of alternating symbols, probably representing the butterfly, which may be solar, and the stellar eye symbol, which is conspicuous in the Mitla mural paintings.[2] In the lowest band are alternating symbols of the planet Venus and two intertwined serpentine figures which probably symbolize the year marked by the northward and southward course of the sun along the ecliptic, and its daily course above and below the horizon. But the middle band contains the most important and varied symbols. It is divided into two rows or panels, the form of which cannot easily be described (pl. XI). The lower row contains eleven human and animal figures, while the upper is composed of seven birds and two human figures. All face toward the west, or left, as is usual in Maya inscriptions. Three figures in the upper row have been completely obliterated,—one at each end of the inscription, and the fourth figure from the western end,—so there seem to have been

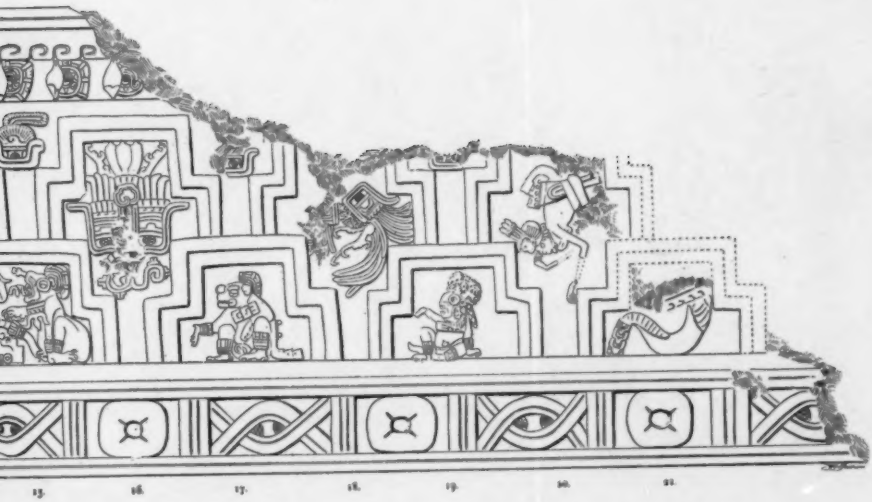
[1] Breton, Archæology in Mexico, *Man*, VIII, pp. 34–37. Seler, Die Stuckfassade von Acanceh in Yucatan, *Sitzungsberichte Königlich Preussischen Akad. d. Wissenschaften*, XLVII (1911), pp. 1011–1025.

[2] See Spinden, Maya Art, p. 213.





THE STUCCO FAÇADE AT ACANCEH, YUCATAN. (AFTER SELER)



15. 16. 17. 18. 19. 20. 21.

12 figures in the upper row, making a total of 23 in the middle band. In the lower row the third and fourth figures from the western end have been almost wholly obliterated. The inscription terminates at each end in the conventionalized figure of a large bird. The interstices between the panels at the top of the middle band contain sacrificial cups and feathers. The purpose of this paper is to interpret the symbols contained within the panels. Dr Seler has identified them with various animals, birds, and deities, and I accept this identification in many, but not all instances.

We shall read the symbols from east to west, or from right to left, in accord with the direction in which the figures face, reversing the numerical sequence used by Dr Seler. Beginning then with the first legible symbol in the lower line on the right we perceive the figure of a rattlesnake. *Tzab-ek*, Rattle Asterism, is the Maya name of the Pleiades in Taurus.[1] The alignment of this star group readily suggests the rattle of the snake. Above the rattlesnake, in the next compartment on the left, appears a human figure plunging downward head-first. The writer has given reasons in a former paper for identifying this figure, as it appears in a zodiacal sequence in the Dresden codex, with the double sign Aries-Taurus. It seems to represent one of a group of stars called *Tzontemoc* by the Mexicans, whose fall from heaven with the lord of the dead was commemorated in the Quecholli festival held when the Pleiades were on or near the meridian at midnight, or when the sun was in the opposite sign Scorpio ruled by the lord of the dead. Now, just at this time the Taurid meteors were most numerous in the sky. They were so called because they emanated from a point in Taurus not far from the Pleiades, so it seems probable that this falling figure represented the descent of one of these meteors.[2] In that case, the first two symbols refer to the sign Taurus.

Next to the left in the lower line is a human figure with apparently abnormal proportions, suggesting the Mexican *Xolotl*, lord of twins and of deformed and monstrous beings. He shares with

[1] Brinton, Primer of Mayan Hieroglyphs, pp. 34–35.

[2] See Hagar in *Proc. Internat. Cong. Americanists*, 16th Session, p. 284. Dr Seler thinks the face of the Acanceh figure is that of an ape. Nothing in the astronomical symbolism confirms this.

his twin brother Quetzalcoatl, the Divine Twin, the rulership of the sign Gemini, the Twins. Above him is the quetzal bird, symbol of the deity just mentioned, whom the Maya called *Cuculcan*. Therefore this second group of symbols seems to represent Gemini, the sign following Taurus in the zodiac.

Next in the lower line is a human figure with the head of a crocodile or some other amphibian. It is probably *Imix*, the eighteenth Maya day-sign. This name, according to Brinton and Förstemann, was originally *mex*, the cuttlefish, but it became corrupted and the meaning later associated itself with a crocodile or with some indeterminate sea-monster.[1] Each of the twenty Maya day-signs was assigned in sequence to a definite part of the zodiac, *Imix* to Cancer the Crab, the sign following Gemini.[2]

Above, an ara flies downward. It is the *Kinich Kakmo*, the Sun Eye and the Ara of Fire which descended from the sky upon an altar at the moment of the June solstice to consume the offerings. The sun is in the sign Cancer at this time, and the ara is perhaps the most prominent symbol of the sign. It was used by the Mexicans as well as by the Maya.[3] The symbol of speech, song, or sound that issues from its mouth answers to the Cancer Uinal or months, *Kayab*, Song, and *Cumku*, Thunder, also to the day-sign *Cauac*, one meaning of which is given as music. The reference is evidently to the season of storms, the thunder being regarded as the celestial drum.[4]

The next zodiacal sign is Leo, and in the following panel we see the unmistakable figure of a puma or jaguar which denoted that sign in both the Maya and the Mexican codices. Beside him is the severed head of a human victim. Above is a pelican in the act of swallowing its food. This bird is not elsewhere used as a Leo symbol, so far as the writer is aware, but it is sufficiently appropriate. The Maya festival of fishermen and hunters held during the uinal month *Pop*, when the sun was in Leo, supports other evidence of the association of the Maya sign with the deity of the hunt, for

[1] See Förstemann in *Bul. 28, Bur. Amer. Ethnology*, pp. 566, 567.

[2] Hagar in *Proc. Internat. Cong. Americanists*, 17th Session, pp. 140 et seq.

[3] Hagar in *Amer. Anthr.*, n. s., XV, pp. 19–23.

[4] See Seler in *Bul. 28, Bur. Amer. Ethnology*, p. 668.

the ritual of the Maya annual festivals, like those of the Peruvians, Mexicans, and the Pueblo tribes of the United States, reflected the attributes of the sign through which the sun was passing at the time when the festival was held. The pelican is a greedy fisher which takes its prey by hovering over the water and plunging upon it when it appears. These birds often fly in large flocks, and their sudden swoop upon a shoal of fish is a striking and beautiful sight. The significance of the pelican as a Leo symbol is clearly indicated in this.

The next lower panel contains an animal which may be a lizard, corresponding with the fourth Mexican day-sign *Cuetzpalin* of Virgo, though its tail does not seem to pertain to the animal named. The iguana is frequently represented in association with *Kan*, the grain of maize, Maya day-sign of Virgo. The figure in the panel above is the maize deity eating a maize cake. He is dressed in dancing costume and carries a basket which may contain tobacco, as Dr Seler thinks, or food. This is the deity who presides over the Maya Virgo asterism. The dancing may refer to harvest rites.

Under Libra, the following sign, the rattlesnake appears again beside a peculiar crescent-shaped object which I cannot identify, but which, to judge from allied symbolism, may represent the lightning or thunderbolt. The snake here stands for *Chicchan*, the serpent, the second Maya day-sign under Libra. This word may conceal the name *chuch*, scorpion, the insect which represents Libra and Scorpio in the Mexican asterisms of Tezozomoc and Sahagun, and the latter sign in the fifth Maya day-sign *Tzec* or Scorpion. Above the rattlesnake is seen an owl, the recognized symbol of the Death God A of the Maya codices who rules the death-signs Libra and Scorpio.

In the lower Scorpio panel is figured a man seated in a chair and wearing an artistic head-dress, probably indicative of high rank.[1] His open mouth, from which issues a conspicuous symbol of speech, and his protruding tongue identify him with the Chilan or oracular priest, the Mexican *Tlahtoani*, who announces the responses which he was believed to obtain from the spirits of the dead. The animal

[1] See Seler in *Bul. 28, Bur. Amer. Ethnology*, p. 380.

tail behind him may be that of a scorpion. A similar figure represents Scorpio in the Borgian and other Mexican codices. The Maya held the Chilan in such veneration that when he journeyed he was almost invariably carried in a litter.[1]

A bat is represented above the Chilan. This animal pertains to the Libra uinal *Tzotz*, or Bat, so we may be sufficiently presumptuous to suspect that the positions of the owl and the bat have been interchanged by mistake, or it may be that, as Libra and Scorpio were regarded in the codices as one double sign, care was not taken to differentiate the positions of the symbols relating to its two parts. The sign of speech or sound issuing from the mouth of the silent bat may indicate the oracular symbolism of the sign just referred to. The glyph of the evening star occurs twice beside the wings. The bat deity in the Maya codices devours the light as ruler of the subterranean cavern into which the sun sinks at setting.[2] This is probably a symbol of the autumnal equinox when darkness prevails over light and the evening star is appropriately placed with these symbols of darkness and night.

The next lower panel is partially obliterated, but what seems to be a tablet of some kind is supported upon two legs, probably of a puma, or ocelot, and at the top of the panel we seem to see the head and antlers of a stag. Both the ocelot and the stag are used as symbols of Sagittarius amongst the Mexicans, and the ocelot amongst the Maya also. *Mazatl*, deer, is the corresponding Mexican day-sign.

The long round objects to right and left should be cases of arrows or other weapons to correspond with the attributes of the war god who rules this sign. The upper panel is entirely destroyed.

Only a trace remains visible of the figure in the lower Capricornus panel. This trace includes a flame-like object which may pertain to the solsticial solar deity. Above is an unknown bird.

In the lower Aquarius panel there is the figure of a squirrel or rodent, suggesting the tenth Mexican day-sign, *Itzcuintli*, some form of rodent. But this day seems to pertain to the preceding zodiacal

[1] Landa (Brasseur ed.), p. 160.

[2] See Fewkes, God D, *Amer. Anthr.*, VIII, pp. 209, 210, 1895.

sign. The bird above may be a vulture, corresponding with the Aquarius symbol in the Borgiano and related codices.

Finally, the Pisces panel contains a frog which may represent the Virgo uinal *Uo*, Frog, as a catasterism. With it appears the glyph of the uinal twenty-day period. The spiral speech or sound symbol issuing from its mouth may refer to the noisy croaking of the frogs. The upper panel is obliterated. The inscription terminates on the east in a large conventionalized bird serpent, here, probably, symbolizing the sky deity.

We have now found symbols of nearly all the zodiacal signs in proper sequence within the panels of the middle band. Aries is missing, the figure which should represent it at the eastern end of the inscription being obliterated. Sagittarius is doubtful or completely obliterated, and Capricornus indefinite and obliterated, but the other signs are all represented, and from Taurus to Sagittarius every symbol has been identified, with a single exception. It is now a simple deduction that the sacrificial cups in the top band refer to those used in the zodiacal ritual of the monthly festivals, each festival being governed by a different zodiacal sign. And as for the planet symbol in the lowest band, the planets were naturally figured in association with the zodiac because they move only within it. The zodiac of Acanceh is unique in that its symbols are presented in a double sequence, that is with two symbols pertaining to each sign.

The symbols in the lower band may pertain to the asterisms themselves, those in the upper band to the deities governing them, as follows:

Sign	Asterism	Governing Deity
Aries	(Missing)	(Missing)
Taurus	*Tzab-ek*, Rattle Asterism	*Tzontemoc*[1]
Gemini	*Xolotl*, Lord of Twins[1]	*Cuculcan*, the Bird-serpent
Cancer	*Imix*, Water Monster	*Kinich Ahau*, Lord Sun-Eye
Leo	*Balam* or *Tzakmul*, Jaguar	Pelican Deity
Virgo	*Cuetzpalin*, Lizard[1]	Maize Deity
Libra	*Chicchan*, Serpent	Death God[2]

[1] Mexican name, Maya equivalent unknown.

[2] The positions of this and the Bat deity following should apparently be interchanged.

Scorpio	*Chilan*, Oracular Priest	Tzotz, Bat Deity
Sagittarius	Ocelot and Stag.	(Obliterated)
Capricornus	(Obliterated)	A Bird Deity?
Aquarius	*Itzcuintli*, Rodent[1]	Vulture Deity?
Pisces	*Uo*, Frog[2]	(Missing)

The Acanceh zodiac differs from that of Izamal in which each mound bore only the symbol of the sign which governed it, but it is similar to the continuous band of zodiacal symbols presented in the mural paintings at Mitla, and the Mexican or Nahuatl influence is marked throughout these symbols.

We find in this zodiac the same sequence of symbolism which the writer has presented in previous papers on the star chart of Salcamayhua and the star lists of early writers, in the plan of the city of Cuzco and in the annual ritual of Peru, in the codices and ritual, the asterisms of Tezozomoc, Sahagun, and Duran, the names of months and day-signs and the plan of Teotihuacan in Mexico and in the codices and ritual, names of months and day-signs and the plan of Izamal in Yucatan. The writer believes that he has also found this sequence and hopes later to present it in the system of *ceques*, or shrine divisions, of Cuzco, on the inscriptions at Santa Rita in British Honduras, on the wall paintings at Mitla in Mexico, and in the annual ritual of the Pueblo tribes in Arizona and New Mexico. There is also evidence that some of the Mexican and Maya temples were dedicated to zodiacal signs. And between all these sequences the correspondence of the symbolism is marked. To the writer it seems that the existence of this nearly identical sequence in the instances named must be granted by those who examine the sources of information. If this be so it indicates the wide distribution and the importance of the symbolism on which it is based. Whether this zodiacal interpretation affords a satisfactory explanation of the oft-recurring sequence, the reader must judge. But, as the writer has previously pointed out, such a series of sequences cannot be produced either by chance or imagination, nor can an explanation which consistently explains them all in proper

[1] Mexican name, Maya equivalent unknown.

[2] Virgo as a catasterism.

order. And the explanation is based not on the possibility of perceiving in a certain group of stars one of the countless forms which imagination can locate there, but first upon positive evidence from star charts and lists, from ceremonials and place names, that certain forms were located in certain asterisms, and secondly on the fact that the other symbols consistently fit into the positions to which they must be assigned in the sequence, when the position of any one member of that sequence has been determined. Such is the basis on which rests the evidence of the existence and distribution of an American zodiac known from Peru to Arizona. And it should be added that the analogies between the various examples of this American zodiac are but little more striking than the analogy between it and the zodiacs of the Orient, whatever this fact may mean.

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OGLALA KINSHIP TERMS

By JAMES R. WALKER

THIS paper is based on information obtained from many sources among the Oglala Lakota. Much of the information was fragmentary and repetitive, and none of it was systematized. The best was a paper written in Lakota by Thomas Tyon, an Oglala. This, with an interlinear translation and interpretation, is hereto appended.

When Lakota words or phrases are used they are followed by a translation in parentheses, and if this does not express the concept definitely it is followed by an interpretation, also in parentheses.

A few of the Lakota terms cannot be translated; for instance, the term *oma-wa-heton*, which expresses the relationship of the parent of a married child to the parent of the one to whom the child is married.

The suffixes *-ci*, *-ksi*, or *-si* indicate that connubial relation should not be had with the one to whom the relationship is expressed.

The suffixes *-cu*, *-ku*, or *-tku* are the equivalent of the English preposition "of," as, for instance, *hunku* (mother-of). Sometimes this is duplicated, as in *atkuku*, from *atku* (father-of), the duplicated form being used in speaking of the father of a definite person.

The suffix *-la* gives to a term an endearing significance, and is equivalent to the English suffixes *-ie* or *-y* in such words as "auntie" and "sonny." This suffix may be added to most of the terms of relationship. It is habitually used with some of the terms, such as *hoksila* (boy), *tunkansila* (grandfather), and many others.

The suffix *-pi* indicates the plural.

The suffix *-ya* with terms of relationship expresses the concept of "considered" or "considered as."

The relationship to the first person is expressed by the possessive pronoun *mi* preceding the term, except in those cases where the term expresses this relationship. The relationship to the second person is expressed by the possessive pronoun *ni* (your) preceding the term.

The relationship to the third person is expressed by the suffixes *-cu*, *-ku*, or *-tku*, the term being preceded by the name of the one to whom the relation is held.

The possessive pronoun *ta* (his or her) is habitually used with some of the terms of relationship, but this does not alter the manner of expressing the relationship to the persons; for instance, *ta-wicu* (his-woman, wife) would thus be expressed in her relationship to persons:

mi-ta-wicu	my wife.
ni-ta-wicu	your wife.
ta-wicu-ku	his wife.

This paper is written as if by an Oglala at the time when the customs and usages of the Lakota prevailed among them.

Those who speak certain dialects and conform to certain customs and usages are Lakota. The Lakota are allied against all others of mankind, though they may war among themselves. They are *oyate ikce* (native people), and are *ankantu* (superior), while all others of mankind are *oyate unma* (other-people), who are *ihukuya* (considered-inferior). This is the relation of the Lakota to all others of mankind, and if any refuse to acknowledge this relation they are *tokoyapi* (considered-enemies), and should be treated as such.

The Lakota *taku-kiciyapi* (consider-one-another-kindred), because they are all either *owe* (of-blood, of-one-blood), or *oweya* (considered-of-blood). The *owepi* are those whose ancestors were *owepi*. The *oweyapi* are those who have ancestors who were *owepi*, but who have one or more ancestors who were *oyate unma* (other people).

The bonds of relationship of the Lakota are stronger between the *owepi* than they are between the *oweyapi*. These bonds depend on the following conditions: The Lakota are divided into seven *otonwepi* (of-own-blood tribal divisions), of which the Tinta-tonwan (Camp-on-plains = Teton) is the principal *otonwe*. The Tinta-tonwan are divided into seven *ospayepi* (divisions), the Oglala being the principal *ospaye* of these seven.

The Oglala are divided into seven *ti-ospayepi* (tipi-divisions = bands); each *ti-ospaye* is composed of one or more *wico-tipi* (camps), and each camp is composed of two or more *ti-ognakapi* (husbanded-tipis).

Thus the strength of the relationship of one Lakota to another is in the following order: 1, *ti-ognaka;* 2, *wico-tipi;* 3, *ti-ospaye;* 4, *ospaye;* 5, *otonwe.*

A *ti-ognaka* is established in the following manner: A man should take a woman to be *ta-win* (his-woman, his-wife). It is better that she should not be *wico-we* (they-blood, of his immediate family), whose relationship to him is not expressed by a term ending in *cu, ksi,* or *si,* and it is better still if she is not of *ti-wahe* (belonging to-the-tipi = any relative of his family), and it is best if she should not belong to his *wico-tipi* (camp). It is the most fitting that he should woo her and *wo̱hpe* (pay-the price-of-a-woman) for her. The price of a woman is six buffalo robes or their equivalent in value, and should be paid to those who have the disposal of her, who are, in the order of the priority of their claims: her elder sister's husband; her parents; her elder brother; her elder sister; her *hunka* (adopted relatives.)

If he cannot get a woman in this manner he may take her by capture, that is, take her without the consent of any one. Or, some one may present him with a woman, in which case he must accept her, though if he does not wish to keep her he may present her to another. If he has taken a woman as captive from another people, it is his duty to have her bear Lakota children, and if he is not inclined to beget children by her he should present her to one who will do so.

By whatsoever method he gets a woman, when they have consumated their sexual relationship, he becomes *hingna* (husband), and she becomes *ta-win* (his woman); or in case she is a captive from another people, then she becomes *ta-winu* (his captive woman).

If the woman he has taken has not a tipi of her own, they should do as follows: If he has *wo̱hpe* he should go with her to the tipi where she has dwelt, for he is *ta-wicu-ton* (possession of his wife), and abide there until she shall erect her own tipi. He is then *wica-*

woha (buried-man) to his wife's mother and sisters, and should not address them, neither should they address him while he abides in this tipi. If he has obtained the woman in any other manner, she should go to the tipi where he abides. Then she becomes *wino-woha* (buried-woman) to his father and brothers, and they should not address her, nor she them, while she abides in this tipi.

It becomes the man's duty to provide her with skins so that she may make the material for a tipi as soon as possible. This should be done before their first child is born, because if a child is born to them while either of them is *woha*, it is of the *wico-we* (immediate-family) of the one whose tipi it is born in, and does not belong to the one who is *woha*. Further, while either the man or the woman is *woha*, they do not constitute a family, and are *ti-wahe* of the family in whose tipi they abide. They cannot be counted in estimating a *wico-tipi*, or camp. As soon as the woman erects her tipi she should lead the man to it and permit him to enter preceding her, and he should seat himself on the *catku* (honor-place; at the back of, inside the tipi, opposite the door). Then she should make a fire on the *oce-ti* (tipi-bottom; fireplace at center, inside the tipi), and seat herself at the left side of the fire before him. When she has done this, they are *wastel-keya* (established well), and are freed from *woha*, and the tipi is *ti-gnaka*. He becomes *hin-gnaku* (husband of), and she becomes *ta-wicu-ku* (his wife of), and they are counted in estimating a camp. If a man take a woman who has a tipi of her own, he seats himself on the *catku*, and this makes of it a *ti-gnaka*, and it is estimated in counting a camp.

If a man take a woman who has a younger sister, or sisters, he has the prior claim to take them as his women, and to the *wohpe* for them.

If he takes one or more of them as his additional women they should dwell in the tipi of the sister already married to him, and there will be no additional *ti-gnaka* established. The relation to one another of sisters married to the same man is expressed by the term *teyak*, and they so address one another. But if a man takes an additional woman who is not a sister of the one he has had, then she should erect and establish a *ti-gnaka* of her own, which will be

counted in estimating a camp. A tipi that is maintained by a woman without a husband is *ti-gnaka-sni* (not husbanded tipi), and is not counted in estimating a camp, because it belongs to the *ti-wahe* from which she came. A man who has more than one woman is *wica-bluze* (polygynous man).

The man is the head of the family, and his relation to his wife is that of an owner, and he may do with her as he pleases without being accountable to any one, except that he may not cripple or kill her. If he should cripple or kill her, he is accountable to her *wico-we* (immediate family), who may either maim him, or take his life, as the case may be, or accept the price of a woman, which in such cases is twelve buffalo robes or their equivalent in value. He may abandon her at his pleasure, or present her to any one, either as a temporary or as a permanent gift. To give a wife temporarily to another is the greatest courtesy that can be shown. To refuse to accept such courtesy is an insult to both the man and the woman, which are both free to resent in a marked manner. The woman owns the tipi and all that pertains to it, except the man's clothing and accouterments, and the children are by priority hers, except when the woman is a captive from another people.

Her relation to her man is that of subservience, and she may not abandon him without his consent. If she does so, she forfeits all her rights to the tipi and the children, and becomes *wino-wanzica* (lone-woman), and the man may inflict on her such punishment as he sees fit, usually by disfiguring her in some conspicuous manner, such as cutting off her nose or one of her ears. The relationship of children is considered first to their mother, and then to their father, but they belong to their father's camp.

The relationships within the *ti-ognaka* are:

Oti-wahe.	Belonging to tipi.	The family.
Oti-toka-hi.	Coming-from another to tipi.	The guests.

The relationships of the family are:

Wico-we.	They-blood.	By blood.
Wico-un.	They-usage.	By usage.

The terms expressing the relationship of *wico-un* and *oti-toka-hi*

are the same as those expressing the relationships of *wico-we* with the addition of the suffix *-ya*. The difference between the terms for *wico-un* and those for *oti-toka-hi* is that the former are permanent while the latter are temporary.

The binding force of the relationship depends somewhat on the gender, but this varies according to the ages. The genders are:

wica	male
wino	female
wico	neuter, they or those of the mankind.

The ages are:

MALE	FEMALE	NEUTER	
wica-hca	*wino-hca*	*wico-kan*	old.
wica-hcala	*wino-hcala*		oldish.
wica-sa	*wino-hinca*	*wico-tanka*	adult.
koska	*wi-koska*	*wico-koska*	young.
koskala	*wi-koskala*		youngish.
hoksi	*wi-cinca*	*wakan-heza*	boy, girl, child.
hoksila	*wi-cincala*		boyish, girlish, childish.
hoksicala	*hoksicala*	*hoksicala*	babe.

The bond of relationship is strongest toward those whose ages are expressed by terms which have the suffix *-la*, and toward the females of such. It is the least binding toward the old females.

The Oglala call their collective terms of relationship *wowa-hecon*, (do-mark). The *wowa-hecon* of the *ti-ognaka* are as follows:

MALE	FEMALE	INTERPRETATIONS
Hingna	Ta-win	Husband of one wife, only wife, wife of husband.
Bluze	Ta-yak	Husband of more than one wife, plural wife of husband not sister of other wife.
	Mita-yak	Plural wife, if sister of other wife.
	Wi-nu	Wife captured from another people, or wife loaned temporarily.
	Ta-wicu	Wife of any kind, when connubial relation has been consummated.
Hunkake	Hunkake	Ancestor.
Tunkan	Kun	Grandfather, paternal grandmother (may be used by any one).

	Kunsi	Paternal grandmother (used only by grandchildren in addressing or speaking of their father's mother).
	Onci	Maternal grandmother (may be used by any one).
	Oncisi	Maternal grandmother (used in this sense only by grandchildren when addressing or speaking of their mother's mother), mother-in-law (when used by any other than the grandchildren); a term of respect used when addressing any very old woman, i. e., *wino-hca.*
Tunkansi		Maternal grandfather (used in this sense only by grandchildren when addressing or speaking of their mother's father), father-in-law (when used by any other than the grandchildren).
Tunkansila		Paternal grandfather (used in this sense only by grandchildren when addressing or speaking of their father's father); a term of respect used in addressing any very old man, i. e., *wica-hca;* a title of respect given to a high official, such as the President of the United States; it is also a title of address by the Oglala to their superior god, *Wi,* the Sun.
	Omaheton	The term used only by the parents of a married daughter when addressing her husband's parents.
Omawaheton		The term used only by the parents of a married son when addressing his wife's parents.
Atku	Hun	Father, mother.
Ate		Papa (used only by children when addressing their father or his brother).
	Ina	Mama (used only by children when addressing their mother or her sister).
Cin	Cun	Son, daughter.
Tokaza	Tokaza	Grandchild.
Wica-tokaza	Wino-tokaza	Grandson, granddaughter.

Takos	Takos	Child-in-law.
Tawangan	Tawangan	Step-child.
Cinhan	Cun-win	Son, daughter, a definite person.
Cinksi	Cunksi	Son, daughter, so addressed by the father and his brothers, and by the mother and her sisters, all of whom may address the son and daughter by the following ordinal terms:
Caske	Wi-tokape	Son, daughter, first born.
Hepan	Hapan	Son, daughter, second born.
Hepi	Hepistanna	Son, daughter, third born.
Catan	Wanska	Son, daughter, fourth born.
Hake	Wi-hake	Son, daughter, fifth born.
Hakata	Hakata	Son or daughter, last born.
Cekpa	Cekpa	Son or daughter, one of twins.

The following eight terms designate the relationship of the father's and mother's and father's brothers, and mother's sister's children to each other:

MALE	FEMALE	INTERPRETATIONS
Ciye	Tanke	Eldest brother, eldest sister, of male.
Tiblo	Cunwe	Eldest brother, eldest sister, of female.
Sunka	Tankasi	Younger brother, younger sister, of male.
Sunka	Tanka	Younger brother, younger sister, of female.
Hunkasi	Hunkasi	The relation that the father's brother's children bears to the mother's sister's children, and vice versa.
Tahan	Hanke	Relative to male, brother-in-law, sister-in-law (the elder sister of wife).
	Hanka	Relative to male, sister-in-law (the younger sister of wife), and brother's wife.
Sice	Sicepan	Relative to female, brother-in-law (the sister's husband), sister-in-law (the brother's wife).
Sicesi	Sicepansi	Relative to female, uncle (the husband of the father's sister), and male cousin (the son of father's sister), sister-in-law (the wife of husband's brother), and

		female cousin (the daughter of father's sister).
Tahansi	Hankasi	Relative to male, uncle (husband of father's sister), and nephew (child of sister), aunt (the wife of the mother's brother), and niece (the child of the sister).
Tonzan	Tonska	Relative to male, nephew, niece (child of wife's brother).
Tozan	Toska	Relative to female, nephew, niece (child of brother or of husband's sister).
Leksi	Tonwin	Uncle (the brother of the mother), aunt (the sister of the father).
Hunka-wanzi	Wino-htin	Brother, sister, in a fraternal manner.
Hunka	Hunka	Relative adopted with ceremony.
Ateya		Foster-father.

My father's brother's children and my mother's sister's children speak to and of my father and mother as if these were their own parents, while my father and mother speak to and of such children as if they were their own. The terms of relationship of the father's and mother's children, and of the father's brother's children, and of the mother's sisters' children are the same as if they were all children of the same family.

To make the distinction between the actual father and mother and their children, and the father's brothers' and mother's sisters' and their children, possessive *ki* (own) is used, usually with a pronoun following the term of relationship, for instance:

tiblo (her elder brother) may be the son of her father or of her father's brother, or of her mother's sister. *Tiblo wicaki* (her elder brother their own) would be the son of her father.

The same conditions apply to step-relatives.

Text [1]

Lakota agina wowahecon tona un kin lenakeca ye lo

Lakota among relationship as-many use the all-these .

The Lakota use all these terms of relationship.

[1] This is a copy of a paper written in Lakota by Thomas Tyon, an Oglala, with interlinear translation and interpretation. The terminal words *lo, pe lo, we lo,* and *ye lo* constitute an oral period as used in English composition, and they are represented accordingly in the translation.

Tokaheya wanna wanji wicaxa tawicun ton kij han tawicu mitawicu
Beginning now one man wife has own when wife my-wife
The beginning is when a man has his own wife he addresses her as mi-ta-wicu.

eya cekiya lo Na inx winyan kin mihingna eya cekiya lo
says addresses . And while woman the my-husband says addresses .
While the woman addresses him as mi-hingna.

Wanna hetan tokaheya wowahecon otokaheya iyaye lo
Now from-this beginning relationship beginning-of reckoned .
Now the relationship is reckoned from this beginning.

Iho wanna cinca wanji hokxila ca tonpi kinhan iyohakapa wanji
Well now child one boy may-be born the-when afterwards one
Well now if a child is born it may be a boy, and then if afterwards another is

tonpa yunkan wicincala ca tonpi kinhan hokxila kin wacekiyan kte
born and-if girl may-be born the-when boy the I-address will
born it may be a girl, and then if the boy addresses the girl he will say mi-tanksila.

cinhan mitanksila eya lo Na inx wicinca kin wacekiyin kte cinhan
the-when my-younger-sister says . And while girl the I-address will the-when
While the girl in addressing him will say tiblo.

tiblo eye lo Iho wanna ake iyohakapi wanji yuhapi yunkan ake
elder-brother says . Well now again afterwards one have and-if again
Well now again if they have one and it is a boy, then when

hokxila kinhan tokapapi qon heyus cekinyapi kte cinhan unma winyan
boy the-when first-born said either address will the-when other female
those first born address him, though one is a female and the other a male, they will

na unma wica qeyax nonpin yan misunkala eyapi lo Nahan
and other male though both speak my-younger-brother say . And-when
both speak the same and say mi-sunkala. And when

inx eya hakakta kin wacekinyin kte cinhan unma ciye eye lo
while says youngest the I-address will the-when other older-brother says .
the youngest addresses his elder brother he will say ciye.

Nahan unma kin tanke eye lo Iho hecel wicowepi qon hena winyan
And-when other the elder-sister says . Well thus family said those female
And when his elder sister he says tanke. Well in this family in case the first is a

wan tokapi ehantanx cunwe eya cekinpe lo Na haktala qon he he
a first in-case older-sister say address . And youngest. said that that
female they address her as cunwe. And if the youngest is a female

mitankala eya cekinyape lo Nahan wicowepi nonp wicapi ehantanx
my-younger-sister say address . And-when family two males in-case
they address her as mi-tankala. And when in case there are two males in the

tokapa qon he ciye eya cekinyapi lo Na hakatala qon he
first said that elder-brother say address . And youngest said that
family they address the first born as ciye. And they address the

misunkala eya cekinyape lo *Iho hecel wicasa wan winyan wan*
my-younger-brother say address . Well thus man a woman a
youngest as mi-sunkala. Well it is thus, if a man and a woman are

kici kiciyuza qon he tibloku tankaku nainx
together hold-each other said that elder-brother-of younger-sister-of and-while
married and together as mentioned, then in case the woman has an elder brother, a

cuweku esa yuke ehantanx winyan kin le hinknaku kin le
elder-sister-of if there-are in-case woman the this husband-of the this
younger sister, and an elder sister, the husband of this wife will call her sisters tanka.

tawicu kin tanka yin kte lo
wife the younger-sister says will .

Na wica ehantanx tahan yin kte lo *Na inx eya hektakiya*
And male in-case brother-in-law says will . And while says in-reply
And in this case he calls the male tahan. And he will say in replying,

tahan eya kte lo *Na winyan kin han inx wica kin na*
brother-in-law says will . And woman the when while male the and
tahan. And in such case the woman will say xice.

xice eyin kte lo *Iho hecel wicaxa nonp tanhan kiciyapi qon*
brother-in-law says will . Well thus men two tanhan call-each said
Well when two men call each other tanhan and their

icincapi kin hena iyuha winyan na inx wicapi qon hena winyanpi qon
children-of the those all female and while males said those females said
children are as mentioned, a female and males, in case the female children of the

hena atkukupi cincapi qon winyan ca watekinyan kte ehantanx xicexi
those fathers-of children sd female may-be I-address will in-case cousin
fathers address the males they will say xicexi.

eya lo
say .

Na wica kin wacekinyin kte cinhan hankasi eya lo *Wicasa nonp*
And male the I-address will the-when cousin say . Men two
And the male addressing the female will say hankasi. When two

tanhan kiciyapi qon unma tanhanku cinca wanji cekinyin kte cinhan
tanhan call-each other said other tanhan-of child one addresses will the-when
men call each other tanhan if one addresses the child of the other, in case it is a

winyan ehantanx tonjan eya lo
female in-case niece says .
female he says tonjan.

Na wica kinhan tonxka eye lo *Kinhan inx eya cekinyapi kte ehan-*
And male the-when nephew says . The-when while say address will in-
And if it is a male he says tonxka. While if they address him in such case they

tanx lekxi eyapi kte lo *Nahan tawicu kin inx eya hak taku cinca*
case uncle say will . And-when wife the while says youngest-brother-of child
will say lekxi. And if his wife addresses her youngest broth child, may

kin cewica kinyin kte cinhan winyan ca cekinyan kte cinhan tn
the addresses-them will the-when female may-be addresses will the-when niece be it is a female when she will address it and say tonjan.

eye lo Wica ehantanx toxka eye lo
says . Male in-case nephew says .
If a male she says toxka.

Na inx eya aekinyapi kte nonpin tonwin eyapi kte lo
And while say address will both aunt say will .
And both when they address her will say tonwin.

Iho wicaxa wan tawicu qon he tawicu kin atkuku kin cekinyan tun-
Well man a wife said that wife the father-of the addresses father-
Well when a man addresses the father of his wife he will say tunkansi.

kansi eye kte lo Na inx conwintku hingnaku kin cekinyin kte ehantanx
in-law says will . And while daughter-of husband-of the addresses will in-case
And in case he addresses the husband of his daughter he will say

mitakos ayin kte lo Nahan hehanl wicaxa wanji tawicu hunku kin
my-son-in-law says will . And-when then man one wife mother-of the
mi-takos. And then when a man addresses the mother of his

cekinyin kte cinhan oncisi eyin kte lo Kin hana inx eya mita-
addresses will the-when mother-in-law says will . The when while says my-son-in-
wife he will say oncisi. While she will address him as

kos eyin kte lo
law says will .
mi-takos.

Iho ito miya un Thomas Tyon micinca kin cincapi kin hena takoza
Well so I am Thomas Tyon my-child the children the those grandchild
Well I am Thomas Tyon, and the children of my child I call takoza.

wica waye lo Kin inx tunkansila mayanpe lo
them I-call . The while grandfather call-me .
While they call me tunkansila.

Hehanyan hecetu we lo
So far correct .
This is correct so far.

Iho ake winyan wanji kiciwaun yunkan ehantanx cinca yuke
Well again woman one I-am-together and-if in-case child there-is
Well again, if I marry a woman and in case she already has a child, then I will

cinhan cinca kin tawangan wayin kte lo Na inx ate mayan kte lo Iho
the-when child the step-child I-call will . And while papa call-me will . Well
call this child tawangan. And it will call me ate. Well

hecel micinca kin tawicu kin atkuku kin omawahetun wayin kte lo Na inx
thus my-child the wife the father-of the omawahetun I-call will . And while
thus I will call the father of my child's wife omawahetun. And he

eya omahetun mayin kte lo
says omahetun calls-me will .
will call me omahetun.

Na lekxi cinca kin wacipi kin hena tahanxi wicawayin kte lo
And uncle children the males the those nephew I-call-them will .
And I will call the male children of my wife's brother tahanxi.

Na winyanpi kin hena hankaxi wicawayin kte lo Na inx eya wicapi
And females the those niece I-call-them will . And while say males
And I will call his female children hankaxi. And the males will call

kin hena tahanxi mayanpi kte lo Nahan na winyanpi kin hena xicexi
the those uncle call-me will . And-when and females the those uncle
me tahanxi. And the females will call me xicexi.

mayanpi kte lo Iho hehanl winyan nonp wicabluze kin teyaku
call-me will . Well then women two polygynous the plural-wife-of
Well, when two women are married to one man they will call each

kiciyapi kte lo Wowahecon kin he cuwe kiciyapi quyax onpi
call-each other will . Relationship the that sisters call-each other though use
other teyaku. Sisters do not use this term of relationship for when they ad-

xni miteyaku kin eya cekiciyapi lo Iho hecel ito mitawicu
not my-plural-wife-of they say address-each other . Well thus so my-wife
dress each other they say mi-teyaku. When I speak of my wife's

atkuku kin tunkan waye lo Na mitawicu hunku kin oncisi
father-of the grandfather I-say . And my-wife mother-of the mother-in-law
father I call him tunkan. And I call my wife's mother oncisi.

waye lo Na inx nonpin takos mayanpi lo Na mitawicu kin atkuku
I say . And while both son-in-law call-me . And my-wife the father-of
While they both call me takos. My wife's father and her

na hunku kin kici omahetun kiciyapi lo
and mother-of the each other omahetun call-each other .
mother call each other omahetun.

Na mitawicu wicowepi kin tona winyanpi kin iyuha hanka wicaw-
And my-wife family the as-many females the all hanka I-call-
And I call all the females of my wife's family hanka.

aye lo
them .

Na inx iyuha xice mayanpi lo Na mitawicu hakataku wi-
And while all xice call-me . And my-wife younger-brother-of they-
And they all call me xice. And I call all of my wife's real younger

caki iyuha tanhan wicawaye lo Na inx eya tanhan mayanpe lo
own all tanhan I-call-them . And while say tanhan call-me .
brothers tanhan. And they call me tanhan.

Iho hecel micinca winyan kin cewakinyin kte cinhan cunksi epin kte lo
Well thus my-child female the I-address will the-when cunksi I-say wil .
Well thus when I address my female child I will say cubkxi.

Na wica kin cinkxi epin kte lo
And male the cinkxi I-say will .
And I will say to the male cinkxi.

Na inx mitawicu kin han conwintku kin
And while my-wife the when daughter-of the
And when my wife addresses her daughter she

cinhan cunkxi eyin kte lo
the-when cunkxi says will .
will say cunkxi.

Nahan cinca wica kin ecekinyan kte cinhan
And-when child male the address-to will the-when
And when she addresses her male child she will say

cinkxi eyin kte lo
cinkxi says will .
cinkxi.

Iho hecel ito micinca winyan he tuwe tokeca wawiyunga cinhan
Well thus so my-child female that who another I-speak-to the-when
Well thus when I speak to another of my female children I will say this.

heyin kte lo
say-this will .

He tuwa cunwintku so eyin lo
That who daughter-of ask says .
I speak of her as cunwintku.

Nahan micinca wica kin
And-when my-child male the
And when my child is a male I

kicihan he tuwe cinhintku so eyin kte lo
when-for that who son-of ask say will .
will speak of him as cinhintku.

Nahan micinca xni chantanx
And-when my-child not in-case
And when I speak of my step-child

he tuwe tanku[1] *so eyapi lo*
that who step-child-of ask say .
I say tanku.[1]

Na nakun he tuwa tawanganku so eyapi lo
And if that who step-child ask say .
And if a step-child I say tawanganku.

Iho hehanyan slolwa ye lo
Well this-much I-know .
Well this is as much as I know.

FORT LUPTON, COLORADO

[1] This alludes to the father's brother's children and the mother's sister's children. See above, page 103.

PROCEEDINGS OF THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON

Meeting of October 28, 1913

A special meeting of the Society was held October 28, 1913, in the National Museum building at 4:30 o'clock.

Dr Aleš Hrdlička addressed the Society, his subject being *The Results of a Recent Trip to Peru, with Remarks on the Anthropological Problems of that Country*, illustrated with lantern slides. In 1910 the speaker made a brief exploratory trip in Peru, which resulted in the acquisition of some valuable data and of important skeletal collections. The opportunity to extend the investigations came during the early part of 1913, in connection with the preparation of the anthropological exhibits for the Panama-California Exposition at San Diego. Three busy months were spent on the coast and in parts of the mountain region of Peru, in exploration of ruined cities and ancient cemeteries. The principal objects of the trip were (1) the mapping, as far as possible, of the anthropological distribution of the prehistoric Peruvians, more particularly the coast peoples; (2) the determination of the physical type of the important Nasca group, which represents one of the highest American cultures; (3) further inquiry into man's antiquity on the western coast of South America; and (4) the extension of the speaker's researches in pre-Columbian pathology. The conclusions to which Dr Hrdlička was formerly led were in the main corroborated. In regard to the mountain regions much remains to be determined. As to the pathology of the native Peruvians before contact with whites, the main work can perhaps be now regarded as practically finished, although individual variation in different morbid processes seems inexhaustible, and much in this line remains to be accomplished by future investigation. The ground covered was extensive and the skeletal material examined was enormous, the collections alone filling more than thirty boxes. No excavation was conducted, attention being restricted, on the coast, to the bones covering the surface of ancient cemeteries, exploited by the peones, and to burial caves and houses in the mountains.

Since Dr Hrdlička's trip to Peru three years ago, a change for the worse was observed in the state of preservation of the ancient remains. Also, where formerly there were seemingly inexhaustible quantities of

skeletal material, there is now a dearth of it. No such collection as that made in 1910, when the speaker gathered 3,400 important crania, will ever again be possible from these regions. The major part of the old population of the coast region belongs to the brachycephalic type, intimately related to the Maya-Zapotec type in the north. Wherever they lived, these people of the Peruvian coast were wont to practise, more or less, the antero-posterior head deformation. Everywhere along the coast there are evidences of more or less admixture with a more oblong-headed element closely related to the Aztec and Algonquian types of North America. As among the North American Pueblos, nowhere was the aboriginal Peruvian population at any time as great as the relatively numerous cemeteries or ruins might lead one at first to suppose, for these burial grounds and ruins date from different, although not far distant, periods.

The work done, while to some extent establishing a foundation, is merely a fair beginning. Similar investigations and collections wait urgently on the anthropologist in the important districts of Piura, Eton, and Moquegua, on the coast; in the western sierras from the neighborhood and latitude of Cajamarca to Arequipa; and in the eastern highlands from Tiahuanaco to Moyobamba. The most important problems that await solution are (1) the derivation of the Peruvians; (2) the time of their advent into the country; (3) the extension and exact physical characteristics of the Aymará and Quechua; and (4) the genetic relations of the Peruvian to the Argentina and Chilean aborigines. Besides, there remains to be established in many places the correlation of culture with the physical type of the people. Dr Hrdlička repeated what he stated in a former report, that, owing to the lack of scientific supervision of a great majority of the excavations that have been conducted in Peru, the archeological collections from that country consist of little more than curiosities which it is impossible to refer either to any definite people or to any specific period.

DANIEL FOLKMAR, *Secretary.*

Meeting of November 4, 1913

At a special meeting of the Society on November 4, 1913, Dr JOHN R. SWANTON, of the Bureau of American Ethnology, read a paper entitled *The Indian Village.* Dr Swanton said that while it is a common notion that country life preceded urban life, this view is hardly correct, urban life in its germ going back almost as far as man himself. He then took up the various factors tending to produce the village,

determine its character, and subsequently knit it together. These he found to be of three orders—material, social, and religious. Among the first he enumerated material available for the construction of houses, position with reference to the food supply and fresh water, and occasionally also position with reference to the sun. Among social factors he treated trade, desire for exchange of ideas, need of mutual protection, and relationship, especially in the peculiar form it assumed under totemism. Finally the growth of a village or town cult was traced from the practical independence of shamanism pure and simple to the complete town ritual, sometimes directly, sometimes through the fusion of clan ceremonies, and sometimes through the rituals of religious or other societies. These factors were illustrated by reference to the tribes of the North Pacific coast and the Gulf area. A possible evolution was suggested in three stages: first, the haphazard collection of hunters, fishers, or perhaps agriculturists, in a certain spot; second, the development of social relations among them, particularly through intermarriage; and, third, a religious seal or stamp of unity, though it was not the speaker's intention to set this up as a hard-and-fast process of evolution. It was noted that totemic clans among some tribes might have been evolved in a similar manner. In conclusion a brief comparison was made between the Indian village and the modern city, attention being called to the fact that in the latter the most important determining factor is trade, while in the former relationship, religious observances, and to some extent motives of protection, were much more prominent.

The subject was discussed at some length by Mr J. N. B. Hewitt, who confined his remarks to the village in the social organization of the Iroquois. The basis of the social organization was actual or fictitious blood kinship traced through the mother. The cohesiveness of the several units was obtained through the ties of duty and privilege subsisting between clans united by the marriage of their sons and daughters. The clans were organized into two phratries or sisterhoods of clans, one of which represented the masculine and the other the feminine, in nature. This division was maintained in all public meetings. The one side was therefore called the "father side", and the other the "child side", which of course was the "mother side". Strong lines of actual or artificial kinship and cleavage existed between these two groups. The clan totems have no especial religious significance at present, that is, there are no ceremonies in honor of them. That there were such in early times is quite possible. The decadence of the worship of the clan totem was due probably to the unification of the clan government into

that of the tribe, and, later, of the tribe into that of the confederation. The great influence of the council of women, composed of mothers only, in the affairs of the village and tribe and confederation was emphasized, and illustrated by the effectiveness with which they could stop or prevent a war. They needed only to forbid their sons to engage in warlike activity under penalty of becoming outlaws to the tribe and confederation. The gradual adoption of the Tuscarora tribe of North Carolina by the Iroquois League on motion of the Oneida as their sponsors, was described, the Tuscarora being first regarded as infants, then as boys, then as huntsmen who were not allowed to take part in the wars and councils of the League, and finally as warriors having their chiefs to represent them in the Federal Council of the League.

DANIEL FOLKMAR, *Secretary.*

Meeting of November 25, 1913

The 469th regular meeting of the Society was held November 25, 1913, in the new building of the National Museum, the president, Mr G. R. Stetson, in the chair.

DR DANIEL FOLKMAR, who has charge of the report on "Mother Tongue" in the Bureau of the Census, addressed the Society on *Some Results of the First Census of European Races in the United States.* Statistics of the mother tongue, or native language, of the "foreign white stock" of the United States are presented in the report soon to be issued by the Bureau of the Census. It was prepared under the supervision of the chief statistician for population, assisted by the speaker as expert special agent. There were presented, for the first time in the census, figures directly relating to the ethnic composition of the white population of the United States, in so far as that is indicated by the native language. This term is taken to mean the language of customary speech in the homes of immigrants before immigration.

One of the most interesting facts disclosed in this report is the great numerical preponderance which is still held by the mother tongues of northwestern Europe as a whole, notwithstanding the high rank numerically which has been gained by a few individual mother tongues from eastern and southern Europe—especially the Italian, Polish, and Yiddish. These three now stand third, fourth, and fifth in rank. The English mother tongue is by all odds the one most largely represented in the foreign white stock of the United States. The number, 10,037,420, is considerably greater than that of the German mother tongue, which latter contributes more than one-fourth (27.3%) of the total foreign

white stock of the United States as reported in 1910. Italian, Polish, and Yiddish come next in rank, but none of them number as much as one-fourth of the German. To these three mother tongues, intermediate in rank but considerable in numbers, may be added the Swedish, French, and Norwegian, all belonging to northwestern Europe, except a portion of the French. No other mother tongue than the eight thus far enumerated furnishes as much as 2% of the total of the foreign white stock of the United States, or numbers as much as 1,000,000. The eight major mother-tongue stocks already named account for 87.5% of the total foreign white stock.

How small a factor the "new" immigration from southern and eastern Europe really is, to the present time, may be better shown by comparing it with the total white population of the United States. Taking as 100% the total white population of the United States in 1910, numbering 81,731,957, the so-called "native stock" constitutes 60.5% and the three great linguistic families of foreign stock from northwestern Europe constitute 27.1%, making a total of 87.6%. The elements from southern and eastern Europe constitute, therefore, less than 13% of the total. Of this the two principal Latin mother tongues—the French and the Italian—contribute less than 5%, and the two principal Slavic mother tongues—the Polish and the Bohemian—and the Hebrew, taken together, contribute also less than 5%, leaving to all the remaining mother tongues another 5%, or less, of the total. Of the total foreign white stock of the United States, 32,243,382, there are 8,817,271 persons who are of German stock when counted according to mother tongue, but a trifle under 8,500,000 (8,495,142) of German stock when counted by their country of origin, Germany.

Immigrants from Austria are far more Slavic than Germanic. Russian immigration is shown to be far more Hebrew (52.3%) than Russian (2.5%) or even Slavic. Immigration from Turkey in Europe is not so much Turkish as Greek and Bulgarian. Both the first and the second generations of immigration from Russia show that more than 50% report Yiddish and Hebrew as their mother tongue. The returns for "Yiddish and Hebrew" reflect ethnic composition less satisfactorily than the returns for other mother tongues. A part (how large a part there is no means of judging) of those whose ancestral language is Hebrew doubtless have reported German, English, Polish, or other mother tongues. Of the total number of Yiddish-speaking people 838,193 come from Russia, 144,484 from Austria-Hungary, 41,342 from Roumania, 14,409 from the United Kingdom, and 7,910 from Germany.

The paper was discussed by Messrs Stetson, Hough, and Farquhar, and Mrs James.

DANIEL FOLKMAR, *Secretary.*

Meeting of December 9, 1913

A special meeting of the Society was held at 4.30 P. M., December 9, 1913, in Room 43 of the new National Museum building, the president, Mr Stetson, in the chair. About fifty persons were present.

DR CHARLES B. DAVENPORT, of the Carnegie Institution, director of the laboratory at Cold Spring Harbor, Long Island, addressed the Society on *Man from the Standpoint of Modern Genetics.* He said that the problem of the origin of species has now become largely reduced to the problem of the origin and survival of the characters of the species. Since groups differentiated by a single character are called biotypes, the question of the origin of species is now that of the origin of biotypes. Man is a congeries of biotypes. If these do not exist as distinct elementary species it is because of the tremendous hybridization that is taking place between biotypes. These biotypes are most nearly realized in islands, peninsulas, and out-of-the-way places. The most distinct of the human races exist today in such places as Australia and Ceylon, the Japan islands (Ainos), Cape Horn, and inside the Arctic circle within the Old and the New World. But in small islands of the coast where people have been long settled and little disturbed, they tend to approach a pure race or biotype.

Under the shelter of this isolation, incidentally, opportunity has been afforded for an adjusted race to spring up; but there is danger of deterioration through too close interbreeding. Hybridization, as stated, is constantly preventing the complete development of these biotypes. This hybridization has gone on with man since early times, so that few biotypes are now actually realized. It is now going on faster than ever, and even the rare fairly pure biotypes are fast disappearing from the globe. The work of the anthropologist of the future must be largely with these hybridized biotypes; his principal study will be the inheritance of the various differential traits.

The method of inheritance of some of these traits has already been studied. Thus we know that the brown iris is dominant over its absence, as seen in blue eyes. The skin color of the negro is complex, being due to two double (or four) factors; and these may work independently of one another, so that we have over two, three, or four pigment factors in the skin, producing the typical quadroon, mulatto, Sambo, and full negro

skin coloration. Dark brown hair is dominant over blond hair; so that when both parents have only blond hair the children are all blonds. Two red-haired parents have only red-haired offspring. But two glossy black-haired parents may carry red hidden and so have red-haired children, as we so often see among the Irish. Kinky or curly hair is dominant over straight. Two straight-haired parents have, typically, only straight-haired children.

Many "hereditary diseases" depend on a "diathesis", a non-resistance that is clearly inherited, and if matings of like or of relations occur extensively, we have the elements necessary for the production of a biotype. Among such diseases are Huntington's chorea, presenile cataract, and night blindness. Other diseases are inherited as sex-linked characters—such are color blindness and the "bleeding tendency". Very striking is the tendency to produce a real biotype of the imbecile class, because imbeciles tend to segregate themselves and to intermarry. This is the reason why we get such histories as the Nams of New York, the Hill Folk of Massachusetts, the Pineys of New Jersey, and the Jukes of New York. Any condition that favors consanguineous matings, or matings of likes, favors the formation of a variety of the human race, as Dr Alexander Graham Bell (the Francis Galton of America) long ago pointed out. Thus most institutions which do not provide permanent custodial care tend to promote such marriages; for example, among the deafmutes, tubercular, nervous, paupers, and even alcoholics and users of narcotics. On the other hand, in consequence of social stratification, fine near-biotypes, like the Lowells of Boston, the Dwight Woolseys of Connecticut, the Bayard-Jay-Livingston complex of New York, and the "first families of Virginia" have arisen. Actors tend to marry each other and so rapidly produce nearly pure strains of histrionic talent. This nation owes more than it recognizes to its strains of inventors, surgeons, commanders, statesmen, authors, artists, and financiers that have made her famous and given her the high standing she has attained in the family of nations.

Thus biotypes in man prove to be real things, and their study is quite as much within the proper field of research of the anthropologist as are the commonly recognized races of men.

The paper was discussed by Doctor Hrdlička.

DANIEL FOLKMAR, *Secretary.*

Meeting of December 16, 1913

At the 470th regular meeting of the Society held December 16, 1913, MR JAMES MOONEY, of the Bureau of American Ethnology, delivered an address on *The Gaelic Factor in the World's Population*. The speaker dealt chiefly with the Irish Gaels and drew a distinction between the Irish of native Gaelic stock and the unassimilated alien element massed in several of the northeastern counties as the result of the "Plantations" under James I and Cromwell. This alien element was of English and Lowland Scotch stock, with a slight Highland Gaelic infusion, Protestant in religion and mostly Unionist in politics, while those of the old native stock were as solidly Catholic and Nationalist. Speaking broadly, in Ireland the Catholics represent the original Gaelic stock; the Episcopalians, those of English stock; and the Presbyterians and Methodists, those of Scotch origin, constituting respectively about 74, 13, and 11% of the total population. The present Gaelic race of Ireland is a blend of the Gael proper, a Keltic people who arrived in the country probably from northern Spain about 1000 B. C., and of all other races who preceded or followed them up to the end of the thirteenth century, including the neolithic man, the unknown megalith builders, the dark-haired Firbolg, the Picts, Danes, Normans, and Welsh. The Irish immigration to the American colonies previous to the Revolution was mainly of the alien Scotch and English element, known sometimes as Scotch-Irish. The Gaelic Irish immigrants did not begin to arrive in any great number until after the war of 1812, excepting in Maryland.

The wars growing out of the Reformation and the Stuart contests reduced the Irish race from an estimated 2,500,000 in 1560 to about 960,000 at the end of the Cromwellian war in 1652. In 1845 it reached its maximum estimate of 8,500,000. Then came the great famine of 1846–47. Within three years nearly 1,500,000 perished of hunger or famine fever. This started the great flood of emigration through which Ireland has lost virtually half of its population within sixty years. In 1911 it stood at 4,390,219, the lowest point reached in more than a century. Owing to governmental and economic conditions this decrease has been chiefly at the expense of the old native Gaelic stock rather than the Planter stock, the Gaelic percentage, as indicated by the religious statistics, having fallen from 83 to 74. In the sixty years ending March 31, 1911, according to the official British figures, 4,191,552 emigrants left Ireland, or nearly as many persons as are now living in the country. About 3,000,000 of these came to the United States, the total Irish

immigration to this country from 1821 to 1900 being, officially, 3,871,253. From 1821 to 1850 the Irish constituted nearly half of all our immigrants. Previous to the Revolution the "Scotch-Irish" immigration was so great that in an official Parliamentary inquiry in 1778 it was asserted that nearly half the American Revolutionary army was of Irish origin. Since 1870 the number of Irish-born in the United States has steadily decreased, by death and dwindling immigration. According to the census of 1910 there are now in the United States—Irish born, 1,352,155; American born of full Irish parentage, 2,141,577; American born, one parent born in Ireland and the other in the United States (in most cases the result of an Irish immigrant marrying an Irish American), 1,010,628; total of Irish birth or parentage, 4,504,360. This does not include any of the 811,000 non-French Canadians in the United States, of whom a large proportion are of Irish blood, nor any of the 876,000 coming from England, of whom also a large number are of Irish origin. Neither does it include any of the 1,177,000 American born "of mixed foreign parentage," including such parentage combinations as Irish and German, which alone probably runs above 50,000. Among the states, New York stands first with 1,091,000 of Irish birth or parentage; Massachusetts second, with 633,000; and Pennsylvania third, with 570,000. For all these figures it may be asserted that more than four-fifths are of Gaelic stock.

By the latest British census, 1911, the population of Ireland was 4,390,219, of whom all but 157,037 were native born. Of the native born about 74%, or 3,245,000, represent the old Gaelic stock. By the same census there were 375,325 persons of Irish birth then living in England and Wales, while an unofficial estimate puts those in Scotland at about 220,000, or nearly 600,000 for the whole island, which with the children of Irish parentage would probably total at least 1,500,000. The same census gives 139,434 Irish born to Australia, or perhaps 350,000 of Irish blood. South Africa and the other British colonies, exclusive of Canada, have an estimated 100,000 of the same stock, while Canada has in round numbers 990,000 of Irish birth or parentage, of whom about 750,000 are of Gaelic origin, as indicated by religious denomination. Outside the countries already named, Argentina has some 15,000 Irish born and the rest of Latin America possibly as many more, with perhaps another 15,000 or 20,000 scattered over the rest of the world. To sum up, the total Irish-born population throughout the world is now about 6,875,000, or about 1,625,000 less than the population of the home country alone in 1845, while the whole number of unmixed Irish blood may be about 16,000,000, of whom nearly 14,000,000 are of Gaelic

stock. The total Gaelic population—Irish, Scotch, and Manx—of fairly pure stock and racial identity, in every part of the world, probably numbers close to 18,000,000.

DANIEL FOLKMAR, *Secretary.*

Meeting of January 6, 1914

AT a special meeting of the Society held on January 6 at the National Museum, Dr TRUMAN MICHELSON, of the Bureau of American Ethnology, delivered an address, *Notes on the Fox Indians of Iowa.* Their own native name is *Meskwa'ki'ag*^{i}, "Red-Earths"; the French name, *les Renards*, is derived from the appellation of a single gens, *Wāgō'ag*^{i}, "Foxes"; the English name "Foxes" is a translation of the French *les Renards;* the term "Outagamies" (and variants) is derived from the Ojibwa *Utagāmīg*, "they of the other shore." Their closest linguistic relations are first with the Sauk, then the Kickapoo, then the Shawnee, and then the so-called Abnaki tribes. They are also comparatively close to the Menominee and Cree as compared with the Ojibwa, Ottawa, and Potawatomi. The thesis that the Foxes were once an Iroquoian people and subsequently took up an Algonquian dialect cannot be substantiated. There is presumptive evidence that the Foxes were once in the lower Michigan peninsula; however, their proper history begins in the last half of the seventeenth century in Wisconsin, on the Wolf and Fox rivers. The long French wars broke out in the early part of the eighteenth century. Even the transportation of Kiala (that is *Kyanāw*^{a}) by De Villiers to Montreal, and his subsequent exile to Martinique, did not break their spirit; and De Villiers paid for his overconfidence with his life. Soon there was peace with sporadic outbreaks till Beauharnois' recall, when war began again in earnest; however, the Foxes assisted the French against the English. After the overthrow of French power in Canada the Foxes were favorable to the British interest. The fraudulent treaty of 1804 with the United States was probably responsible for the Foxes siding with the British in the War of 1812, and the subsequent troubles which culminated in the famous Black Hawk War. The Foxes claim that as a body they took no part in this; however, owing to continued disturbances with Indians and the pressure of white settlers, the Sauk and Foxes sold their remaining lands in Iowa and agreed to remove to Kansas. Nevertheless small bands of the Foxes returned continually to Iowa, and it is even likely that a number of individual Foxes never removed to Kansas. In 1856 the Iowa legislature passed a bill enabling the Foxes to settle in that state; accordingly they purchased

land with their own money, near Tama, and from time to time this has been added to until they now own about 3000 acres. The main body of the Foxes, as a matter of fact, did not leave Kansas until the outbreak of the Civil War, when MAmīnwānigä[a], the Fox chief, was unwilling to sign a proposal to allot the Sauk and Foxes in Kansas. He was deposed from his chieftainship by the agent for this reason, and went to Iowa with nearly all the Foxes, according to tradition. In 1896 the state relinquished jurisdiction of the Foxes to the Federal government, and at the same time certain claims of the Foxes against the Sauk were adjusted. There are some Foxes enrolled with the Sauk of Kansas and Oklahoma; the present population of those in Iowa is about 356.

An abstract of Dr MICHELSON'S paper, *Notes on the Social Organization of the Fox Indians*, read at the New York meeting of the American Anthropological Association and largely incorporated in his present address, appears in the *American Anthropologist* for October–December, 1913, pp. 691–693.

DANIEL FOLKMAR, *Secretary*.

Meeting of January 20, 1914

AT the 471st meeting of the Society, held January 20, 1914, at the National Museum, Mr WILLIAM H. BABCOCK spoke on *The North Atlantic Island of Brazil*, illustrating his address with lantern slides of early maps. North Atlantic geographical conditions were first shown by a recent current map. Attention was called to the region surrounding the Gulf of St Lawrence and to the three Brazils: that of South America; Mount Brazil in Terceira, where the old island name has been restricted to one eminence; and western Ireland, where the peasantry still believe in a great land called Brazil or Breasail west of them in the ocean. This last is probably the original Brazil, from which the others received the name directly or indirectly, it being identical with that of a mythical pagan Irish hero; also practically with that of St Bresal, otherwise Brecan, buried on the Island of Aran, where the belief in Brazil island is strongest. Outside of Ireland it first appears in the expression "grana de Brasile" —grain of Brazil—in a commercial treaty of Ferrara, Italy, dated 1193, and another Italian document of 1198.

The speaker suggested that the primary Brazil, west of Ireland, may have been the region surrounding the Gulf of St Lawrence. The maps of Dalorto 1325 and Dulcert 1339 were presented as the first showing Brazil—a nearly circular figure west of southern Ireland; the Atlante Mediceo map of 1351 for the same and also as the first one applying the

name Brazi or Brazil to Terceira, also the first to delineate the three sub-groups of the Azores and in particular Corvo, which had then substantially its modern name, and is shown brought back toward Europe a long way from its natural position. Numerous other maps, including Giraldi 1426, Beccaria 1435, Bianco 1436 and 1448, and Pareto 1455, were offered to show the constancy of this disc or full-moon form and westward position. The same is true of Valsequa 1439, Fra Mauro 1459, and a great majority of the pre-Columbian maps of the fifteenth century. The Pizigani map of 1367 was exhibited for this, also for its curious multiplication of Brazils, applying the name not only to Terceira, but also to an island southwest of the circular Brazil, the same being of approximately crescent form and called Man, Mam, or Maida on most maps. It also contains a pictorial record of a disastrous Breton expedition to this island, and obscure inscriptions referring to Arab voyages. The Catalan Atlas of 1375 and another were presented as showing an annular Brazil nearly in the usual position, but having for its interior an inclosed sheet of water dotted with islands, instead of the mottled interior appearance of the disc of Dalorta and Dulcert. The Catalan map of 1480 and that of Prunes 1553 were represented as instances of another and rather common type in which a channel divides the round island into two, generally from north to south and slightly curving westward in the middle. Pinelli 1384 was given as another aberrant form somewhat like the letter C with its opening toward Europe. These various forms indicating interior water space were explained conjecturally as imperfect realizations of the nearly inclosed and island-containing Gulf of St Lawrence, its entrances and the land-wall surrounding it; the circular form by the tendency of the time toward symmetrical outlines; the inadequacy of distance from Ireland by a minimizing tendency of the map-makers in such cases evidenced in the far too eastward positions of Corvo and Greenland on many maps. The Catalan map of 1480 was also referred to as apparently harmonizing two traditions by presenting both. At the far west, though too far south, it shows Greenland, Illa Verde, and just below it a second Brazil, large and circular. In that direction the nearest neighbor of Greenland is obviously lower Labrador or Newfoundland, a part of the region suggested. The map of Coppo 1428 was given to show an earlier instance of Greenland as Isola Verde, but in proper place, also to illustrate the treatment of western lands generally as islands. The map of Sylvanus 1511 and some others were given to show the transfer of the region about the Gulf of St Lawrence, as an island, eastward toward Ireland, the same performance ascribed to earlier map-makers by our conjecture.

The explanations hitherto given of the word *Brasil*, the dividing channel, and the interior water, were briefly reviewed and considered inadequate. The corroborative testimony of the Norse sagas as to Great Ireland, and the opinion of Dr Storm and Dr Fisher identifying Brazil with Markland were mentioned as best supported by the Catalan map of 1480. The alternative names Montonis (Dalorto), Montanis (Freducci), Montorius (Benincasa) or Monte Orius, also that of Binar (Bianco) were briefly considered. The general argument was summarized as indicating that some who spoke Irish reached the St Lawrence gulf and the region around it at a very early period and gave it the name Brazil, different narrators stating its salient points differently or being sometimes misunderstood.

DANIEL FOLKMAR, *Secretary*.

Meeting of February 3, 1914

A special meeting of the Society was held at 4.30 P. M., February 3, 1914, in room 43 of the new building of the National Museum, the president, Mr Stetson, in the chair, and about eighty persons present.

MISS FRANCES DENSMORE, of the Bureau of American Ethnology, read a paper on *Sioux War Songs*, using the stereopticon, the phonograph, and vocal selections in illustration of her theme. She first showed lantern slides of the prairie, where the long war drama of the Sioux was enacted, then portraits of some old Sioux warriors, and, last, a number of native drawings of war incidents. Many war customs were illustrated by the details, as well as by the subjects, of these drawings. One phonograph record of a woman's voice was given in connection with the portrait of a woman who sang a song in honor of a relative killed in war. The remaining songs were given vocally, the melodies being those sung by the Indians, but no effort was made to imitate the Indian manner of singing. Each drawing had one or more songs which were either sung at the time the incident occurred or composed in honor of the event. These songs were phonographically recorded by the men who made the drawings, and were afterward transcribed in musical notation by the writer.

It is said that the Sioux, among all the Indian tribes, were the best of friends and the worst of enemies. They were indeed men to be feared in the old days. One of their societies was well named the "Strong Hearts". They were trained from childhood to have "strong hearts", and they held to a purpose when others failed. The warriors of a certain society carried in war a lance to which was fastened the skin of a crow. When that lance was planted in the ground they dared not retreat from

it. So in loyalty to a friend or in hatred of an enemy they thrust their lance into the ground and stayed by it.

War among Indians had an aspect different from that which it has among civilized nations. It was not an occasional calamity; it more nearly resembled a steady occupation. To the individual it offered a career. A man could best become rich and honored by going to war. A man was rated according to his generosity, and having given away his goods there must be some way of securing a new supply of wealth. A war party afforded this opportunity. War was a means of revenge, and Indian revenge was a terrible thing. War was for the defense of the home, and the protection of the hunting ground which meant the food supply. Indian warfare was, after all, the physical expression of something which must always go on, only changing its form, as forces do, and passing from physical to mental battle grounds.

There was much of interest on the warpath besides the killing of enemies and the capture of horses. A war party often traveled far and brought back strange tales of distant lands. New customs were frequently introduced into the tribe as a result of war expeditions or the taking of captives.

Only a successful warrior could belong to the leading societies of the tribe, with their special tents for meeting, their feasts, and their parades, all of which were very attractive to the Indian. But the greatest reward was the right to sing of one's valor at the assemblages of the tribe.

DANIEL FOLKMAR, *Secretary*.

Meeting of February 17, 1914

The 472d regular meeting of the Society was held in the new building of the National Museum on February 17, 1914, at 4.30 o'clock, the president, Mr George R. Stetson, in the chair. The address of the afternoon was by Mr J. N. B. HEWITT, of the Bureau of American Ethnology, on *The Psychology of the Myth*.

A myth, said Mr Hewitt, in part, is the utterance of savage man; it is a naïve creative concept. A myth treats of one or more of the "elder people", the familiar "first people", whom men of later times call "the gods". The subject-matter of myths is not human activity, for none relates to human beings and none treats of things done since the appearance of man on earth. A myth is fictitious only in form and letter, but it is true in substance and spirit; truth is eternal and universal. In terms of human attribute and activity myths explain, on the premises of their relators, in just what manner the present order of things arose

from one or more antecedent orders of things, and just how it is maintained.

The epos is the later dress or adornment of the mythos concept in poetic form as legend, saga, or story.

The logos is the later literary criticism—the analytic and synthetic treatment of the mythos and the epos; it is the intelligent, interpretative analysis and exegesis of the concept of the mythos; it is logical, scientific; so mythology may be defined as the logic of the mythos. The first men had only myths; and whether as cosmogony or as religion they were final, conclusive.

Hence, mythos, epos, and logos, all translatable by *word*, represent three well-defined stages of human thought in the development of opinions. Whatever, therefore, the ultimate terms or concepts may be in which man may define his gods, the process of reasoning is always quite the same; the "unknown" is defined, though perhaps quite unconsciously, in terms of the "known"; and the "known" quantity is here man, whatever this concept may signify at the time and place. The phenomena and the processes of nature are personified, and so humanized. So that all powers and functions and attributes characteristic of man—no matter whether good or evil—are ascribed to the gods in a more or less idealized form. Not only this, but the arts and the social and the religious institutions of men are in like manner unconsciously attributed to the gods; and so the social and the religious institutions of the gods are an exact reflex of the human society believing in such deities.

By so doing, men, unconsciously perhaps, in their myths and epics, gave a faithful picture of the early culture and civilization of their own ancestors. In this manner, in brief, the gods later become the *revealers* of all history, the teachers of the arts and crafts, and the founders of the institutions—human and divine—of a people. Here the true source of prophecy and inspiration is found; for these divine beings are the offspring of the interaction of the powers and phenomena of nature and the mind of man in its conscious, its subconscious, and its superconscious activities.

DANIEL FOLKMAR, *Secretary.*

Meeting of March 3, 1914

At a special meeting of the Society held March 3 at the National Museum, MR W. E. SAFFORD read a paper on *The Pan-pipes of Ancient Peru* and exhibited specimens. Mr Safford became interested in the music and musical instruments of the ancient Peruvians during a cruise

along the western shore of South America in 1887. At Arica, near the northern boundary of Chile, he found in a prehistoric grave two sets of pan-pipes made of graduated reeds closely resembling the syrinx, or fistula, of the ancient Greeks and Romans. At Payta, Peru, he witnessed a morris dance in which the dancers kept time to a pipe and tabor very similar to those which were used in England in early times. Afterward he found in collections terracotta vases on which were depicted men playing these instruments, while others were dancing in rings or lines. Pipes made of bone similar to those observed at Payta were also found in prehistoric graves in Peru and northern Chile. Mr Safford described the manner of playing the instruments and imitated the airs played upon them. In dancing, the tabor, or small drum, was suspended from the left arm, while the pipes were held in the left hand, leaving the right hand free to hold the drumstick and mark the rhythm. The occurrence among the ancient Peruvians of a pipe and tabor very closely resembling those used in the Old World is interesting, as is likewise the transformation of an ancient Peruvian dance in which the performers wore masks, into a dance of the "Moros", or heathen Moors, before the march of Christianity. At Payta the occasion was the "Octavario de Corpus Cristi," in which a religious procession was preceded by the dancers. In place of the regulation "hobby-horse" which pranced among the dancers in ancient England, there was at Payta a hobby-bull, with horns and tail, composed of two men concealed beneath a cloth stretched on a frame.

Afterward, while acting as commissioner for the World's Columbian Exposition to Peru and Bolivia, Mr Safford was so fortunate as to observe the performance of an entire orchestra composed of pan-pipes. These were played in pairs, each performer having a mate with a corresponding complementary instrument who played the alternating notes of the scale. Two instruments were necessary for playing any melody, the first yielding the notes mi, sol, si, re, fa, la, do; the second producing the intervening notes re, fa, la, do, mi, sol, si, re. In running the scale the players would consequently alternate. That the pan-pipes of the ancient Peruvians were thus played in pairs is shown by pictures on prehistoric vases, in which two instruments are represented as being connected by a long loose string. The scale used, said the speaker, has not hitherto been understood, since the instruments in collections have as a rule been single, only one of a pair having been retained, its mate in many cases having been sent to some other collection as a duplicate. Mr Safford's observations regarding this use of the instruments in pairs appears to be new. Other observers have commented on the alternation of tones pro-

duced by the players of pan-pipes, but no one, he said, has called attention to the fact that the pipes are paired, each having its complementary mate, without which it is powerless to produce a musical scale.

The pan-pipes observed were in most cases composed of sixteen reeds, in two rows, one row superimposed upon the other, the row played upon by the performer having the reeds closed at the bottom, the outer row having reeds with an opening at the bottom. The smallest pair produced shrill notes like those of a piccolo; the middle pair, tones an octave lower, like those of a flute; the largest pair, with reeds twice as long as the middle pair and four times as long as the smallest pair, gave forth deeper tones very much like those of a barrel organ or a calliope. The alternation of notes may be compared with that yielded by the mouth organ, or accordeon, effected by expelling and inhaling the air.

DANIEL FOLKMAR, *Secretary.*

Meeting of March 4, 1914

At a special meeting of the Society held March 4 at the National Museum, DR A. B. LEWIS gave an address on his *Travels in the South Seas and New Guinea*, illustrated with lantern slides. The four years of 1909–13 were spent in the South Pacific in the interest of the Field Museum of Natural History in Chicago, studying the natives and collecting ethnological material. The region chiefly concerned was in Melanesia, which includes the island groups extending northwestward from Fiji and New Caledonia through the New Hebrides and Solomon islands to New Guinea. Many of these islands are large and mountainous, covered with a dense tropical forest, and only partially explored. Though all are claimed by different European powers, only the smaller islands and the coasts of the larger ones are under control. The traveler is perfectly safe, however, except in a few regions which are well known. Transportation is the great difficulty, and if one wishes to get away from the few settlements, it must be by small launches or sailing craft belonging to the scattered traders and planters, or by native canoes. These are of various kinds, and were illustrated by slides. In one of these canoes the speaker traveled more than a hundred miles, stopping at the native villages, sleeping in the native huts, with only natives as attendants and guides.

The condition at present varies much in the different islands; Fiji is the most civilized. The natives of Fiji are all professing Christians, and read and write their own language. Except the ordinary things of

everyday life, there is little of the old left. The native Fijian population is about 90,000, the European 3,500, while there are 40,000 to 50,000 Indian coolies on the sugar plantations. Industrially, Fiji is far in advance of any of the other groups. For years New Caledonia was a French penal colony, and the natives are reduced to about 30,000 living on reservations, much as our American Indians. The New Hebrides are under the joint rule of France and England, but some of the large islands are still wild and unsafe. To the ethnologist, Malekula is the most interesting. More than twenty languages are spoken on this one island, to say nothing of dialects. The natives, houses, and dancing grounds, with huge carved drums and wooden figures, were illustrated with views. The Solomon islands are mostly English, but two are under German control. Including missionaries, there are probably not more than 300 Europeans in the group. Some of the islands still are unsafe, even to land on the shore, except where there is a mission station or a government post. New Guinea is the largest and most interesting island of all. Except Greenland, it is the largest in the world, and the least known; for while even Greenland has been crossed several times, New Guinea has never been crossed except near the ends where quite narrow. More time was spent on New Guinea than anywhere else. A considerable portion of the coast was visited and short trips made toward the interior. There are but few Europeans in New Guinea, the greater number, about 1,000, being in the British portion of the island, known officially as Papua. A considerable number of these are gold-diggers. In German New Guinea (Kaiser-Wilhelmsland) there are about 200 Europeans, and in the Dutch portion not more than 50. The old condition of warfare among the natives has been stopped, so far as the government can extend its influence. The natives, as a rule, are friendly and hospitable. Many weeks were spent alone with them in their villages, with only native attendants. The habits, customs, and general appearance of the natives, while similar in general aspects, vary greatly in detail. Views illustrating the native villages, the people themselves with their characteristic dress and ornaments, and phases of native life, were shown from a number of different places, so that a general idea of their character and variety could be obtained. DANIEL FOLKMAR, *Secretary.*

Meeting of March 17, 1914

At the 473d regular meeting of the Society, held March 17 at the National Museum, DR J. WALTER FEWKES delivered an address illustrated with lantern slides, on his *Egyptian Experiences.* He considered

especially the significance of certain parallelisms in cultural objects of the Stone Age from Egypt and from the Gila valley, Arizona. These resemblances he ascribed in part to the influence of an artificial system of irrigation in the evolution of an agricultural stage in development.

Dr Fewkes began with an account of the unique shape and cultural isolation of the Nile valley in Neolithic times, and showed how man was isolated by deserts which protected him from outside marauders. His social advancement, at the dawn of history, mainly due to the influx of foreign ideas from the East, can be traced to the coöperative union of clusters of villages or nomes in order more effectually to irrigate the narrow valley fringing the Nile. This coöperation of the rulers of Neolithic Egypt led to a ruler over all, or the rise of a Great House, or Pharaoh, who later became King of Upper and Lower Egypt. To the coöperation in constructing irrigation ditches may be traced a system of enforced labor, or *corvée*, in which the Pharaoh not only acquired all cultivated land and the water which alone made agriculture possible, but also controlled all the labor of the inhabitants. To these rights acquired from the rulers of the nomes in very early times may be traced the power exercised in constructing the magnificent monuments that are the world's wonders.

In Neolithic Egypt there was a succession of villages along the river, each independent of the other, like a cluster of pueblos in Arizona. The remains of architectural constructions at this early epoch still remain, and are sometimes, as at El Kab, well preserved. They are rectangular, massive, walled forts with an encircling wall of clay, not unlike the compounds at Casa Grande and the Great Houses elsewhere on the Gila in Arizona. Within these inclosures in Egypt and in Arizona were temples of mud or clay, public buildings and houses of priests, while around them were clusters of the hovels in which lived the people like the present Egyptians. The dead were buried in neighboring mounds, placed with the knees drawn to the chin and surrounded with mortuary offerings. These graves were rude excavations with floor of straw and roof of mud and boughs. Many resemblances between archeological objects from the Stone Age in Egypt and the Gila valley were pointed out. Among these are weapons, stone implements, pottery and its symbolic decoration, flat basket trays, bone and other objects. Certain common conditions of environment and the necessity for artificial irrigation had led the Stone Age people of different races, without connections, to develop a parallel culture.

DANIEL FOLKMAR, *Secretary*.

Meeting of March 24, 1914

At a special meeting of the Society held March 24 at the National Museum, DR ALBERT HALE, of the Pan-American Union, addressed the Society on *Modern Argentina*, illustrating his remarks with lantern slides.

After a brief description of the geographic relations of the Rio de la Plata region, with an outline of its ethnical and anthropological conditions, the speaker traced the history of Argentina only so far as it had an immediate bearing on material progress, and then gave in detail a comprehensive glance at the present aspects of the republic, its principal cities, industries, products, and activities. One of the interesting features about the republic is that in it is repeated a development comparable with that which has been so characteristic of the United States in North America. In fact, this immense area in South America is the one most easily understood by the Anglo-Saxon who looks back upon the history of material progress and conquest in his own country.

The ethnical elements of the population may be studied in the immigration statistics of Argentina more satisfactorily than in its census. In fact, no census has been taken since 1895, when the total population was 3,954,911. In 1911 it was estimated to exceed 7,000,000. The total number of immigrants in the years 1857–1912 was 4,248,355. It is interesting to note that more than half this number, or 2,133,508, were Italians. The Spaniards were scarcely more than half as numerous as the Italians, or 1,298,122, and other European races were represented by much smaller numbers than these. The French numbered only 206,912, and the "Russians" 136,659. Next to these came a race from western Asia, the Syrians, with a total of 109,234; then the "Austrians" and "Germans" with 80,736 and 55,068 respectively. The "Britons" numbered nearly as many as the "Germans," or 51,660. The Swiss, Belgians, and Portuguese numbered about 20,000 or 30,000 each; the Danes and Dutch 7,000 each; the "North Americans" 5,500; the Swedes 1,700, and "others" 79,251.

The relative proportions of Italians and Spaniards arriving during the last year of this period, 1912, were about the same as during the entire period, or 165,662 of the former to 80,583 of the latter. It is worthy of note that the "Russians" and Syrians rose to the next two places in the list, with a total for the year of about 20,000 each. No doubt the "Russians" and "Austrians" in Argentina, as in the United States, are largely Poles and Slavs of other races than the true Russian, together with a certain proportion of Hebrews. The "North Americans"

arriving during 1912 numbered about 500. The total immigration for the year was 323,403. A high tide of immigration reached Argentina at about the same period as the United States, in the decade 1881–1890, when a grand total of 846,568 immigrants arrived in Argentina. This number was however exceeded in the last half-decade, 1906–1910, when 1,238,073 arrived in Argentina, or a larger proportion than came to the United States during that period.

DANIEL FOLKMAR, *Secretary.*

Meeting of April 7, 1914

At a special meeting of the Society held April 7 at the National Museum, SEÑOR F. A. PEZET, Minister of Peru, read a paper on *Contrasts in the Development of Nationality in Latin and Anglo-America.* Each of these populations, he said, has its special traits of character, born with the individual or developed through the environment. He first considered the relative conditions, at the time of the discovery, of the territories now known as the United States and Latin America; and, second, the type of the first settlers. The discoverers found Latin American territories organized into semi-civilized states, but Anglo-American territory occupied by savages. Two very different types came to America. The Anglo-Americans were oppressed and persecuted by religious intolerance; the Latin Americans were adventurous soldiers of fortune. The former came to build up new homes; the latter, to tear down, to destroy, and to carry away everything they could lay their hands upon. The first Latin Americans were valiant, but ignorant and unscrupulous, principally from a country where religious bigotry was rampant. They were an admixture of virtues and vices and in marked contrast to the men who came to the shores of New England. Whereas the Anglo-Americans acquired the land as settlers and drove the natives westward, the Latin American military forces overthrew native governments and established themselves as the governing class, reducing the Indians often to slavery.

While the Anglo-American settlers brought their families, the Latin Americans did not until many years after the Conquest, but took to themselves Indian women. The offspring became the mestizos, a mixed race that the pure Castilians of Spain never countenanced. Later the creoles came into existence, the offspring of European parents born in America. The mixing of races was finally encouraged by the Spanish monarchy, the idea being to create a great middle class of uniform race. Soldiers were allowed great liberty. Before the year 1800 the mestizo population

of Peru exceeded 250,000. While some mestizos received an education and were reared up with creole children, most were kept in ignorance. While Anglo-Americans readily acquired the art of self-government, our peoples did not; they knew how to rule, not how to govern. So, for more than two centuries the Europeans and the creoles ruled the mestizos and the Indians. The mestizo is nearer the Caucasian than the Indian; physically and morally he is superior to the latter. Although of less active intelligence than the European or the creole, he is more strong-willed and painstaking. In the early days the mestizo who had one parent of rank was placed on an equal footing with the creole; but as the mestizos became more numerous, the Spaniards began to distrust them and prevented them from obtaining certain social positions or much education. All these years the Indians were oppressed, even by the mestizos. After two hundred years of hatred and distrust, these elements eventually, out of sheer exhaustion, became apparently reconciled to their respective conditions. The colonial nationality which was finally evolved, was thus formed of creoles and mestizos, and might have been a beneficent one if it had had time to develop. Ideas of republicanism were adopted from the United States and from France without preparation for self-government, such as the people of the United States had. In the later nationality of the Latin American countries there were, therefore, racial divisions: the creoles and the Spaniards formed the governing class; the mestizos strove to be on an equal footing with these; and, a long way down in the social scale, came the Indians, considered inferior even to the African slaves. The same laxity permitted the mixing of the African with the other races. The Indian population, so long neglected, is now a matter of deep concern in many of the Latin American countries, for example, in Peru, where we have a large percentage of pure Indian and of mestizo blood.

DANIEL FOLKMAR, *Secretary.*

Meeting of April 14, 1914

At a special meeting of the Society held April 14 at the National Museum, MR S. M. GRONBERGER read a paper on *The Origin of the Goths*. The ancient home of the Goths was undoubtedly situated, he said, on both the northern and southern shores of the Baltic, and at the beginning of the Christian era this people had settled chiefly along the river Vistula in northeastern Germany. Previous to the Christian era (about 200–300 B.C.), another division of this race had immigrated into Scandinavia, probably across the Danish isles. Somewhat later, at the

time of the earliest Gothic movement southward, about 215 A.D., the migrants were probably joined by their Scandinavian brethren who emigrated from "Scandza" (mentioned by Jordanes, the Gothic historian), and to this period the Gothic saga of Jordanes should be assigned. This emigration of the Goths from Scandinavia was due probably to some signal defeat in the savage warfare then carried on with the Swedes, or "Svear", of the Scandinavian peninsula. Names of regions and localities in Scandinavia testify to their association with the Goths, and the names of Ostrogoths, or East Goths, and Visigoths, or West Goths, are recognized in Sweden today. Medieval Swedish history tells of constant conflicts between the Swedes and Goths, the latter of whom were the more ancient inhabitants. The two races are now merged and constitute the modern Swedish nation. The Anglo-Saxon poem "Beowulf", by an unknown author, furnishes powerful testimony as to the early home of the Goths in the Scandinavian peninsula and the Danish islands. The Baltic island of Gotland received its name from the Goths, and great numbers of Roman and Byzantine coins and other objects which have been unearthed in that island afford further proof of Scandinavian migrations. In addition to Jordanes, Cassiodorus, on whose history that of the first named was based, Tacitus, Procopius, and Paulus Diaconus, not to mention the earliest though doubtful evidence of Pytheas of Massilia (now Marseille), who had the advantage of having personally visited the regions he described, and many other Greek and Roman historians, testified to the Scandinavian or Baltic origin of the Goths. The most ancient tradition relating to the Goths was that they had come originally from Asia, the cradle of mankind, by way of southeastern Europe, under the leadership of their legendary hero and deity, Odin, or Wothan.

One of the most remarkable runic inscriptions in Scandinavia is that of the so-called Rök stone, discovered in western Ostrogothia, Sweden, which is of great importance in connection with the early history of the Goths. It contains an epitaph and dates back to 830–840 A.D., or the time of the introduction of Christianity into Scandinavia by St Ansgar. The inscription contains an allusion to Theodoric the Great, who afterward ruled as Ostrogothic King of Italy. Another part of the inscription refers to four kings of the Danish island of Zealand. The names of these four, who were brothers, and their sons, can be identified with names mentioned in Jordanes's saga. The Rök runic inscription affords one of the most important fragments of historical evidence connecting the Ostrogothic kingdom of Italy with the Goths of Scandinavia

and contains more points of resemblance with Jordanes's saga than any other known historic source.

The evidence of relationship between the Gothic and Scandinavian languages found in modern Scandinavian tongues is also of great importance. The most essential point of resemblance between these languages is the mutual retention in certain cases of *gg* before *w* and *j* (*ggj* was changed to *ddj* in Gothic); as, for instance, in the genitive plural of Old English *tweza* (two), Danish *twaeggie*, Gothic *twaddje*, modern Swedish *twegge*. Compare also the English *true* with Swedish, Danish, and Norwegian *trygg*, Icelandic *tryggr*, Gothic *triggws*.

DANIEL FOLKMAR, *Secretary*.

Meeting of May 5, 1914

At the adjourned 474th regular and 35th annual meeting of the Society held at 4 o'clock, May 5, at the National Museum, DR EDGAR J. BANKS, field director of an expedition to Babylonia in 1903–05 under the auspices of the University of Chicago, read a paper, illustrated with lantern slides, on *Bismya; or, the Lost City of Adab*. Bismya flourished in central Babylonia throughout a period of two thousand years previous to 2000 B.C. The mounds extend a mile or more along the bed of an ancient canal, about halfway between the Tigris and Euphrates rivers, and five days' journey south of Bagdad. The highest of the mounds reach about fifty feet above the level of the desert. The surface is covered with pottery fragments. The workmen employed were Arabs of the hostile Bedier tribe. Near the surface were found bricks of the temple wall having on their under side the inscription of Dungi, King of Ur, of about 2200 B.C., and below them bricks bearing his father's name, Ur-Engur. At a lower level was found a gold inscription of Naram-Sin and bricks of his father Sargon, the first known Semitic kings, of about 2800 B.C. Until recently the date of these kings was supposed to be about a thousand years earlier.

Beneath the ruins representing these Semitic kings were the traces of the earlier civilization of the Sumerians, a cultured people who had occupied Mesopotamia for several thousand years. From them the wedge-shaped characters of the language and many of the Semitic religious forms were borrowed. An important discovery was a perfect large marble statue of a Sumerian king called Lugal Da-udu of about 4000 B.C. Large numbers of stone vase fragments were found: some were inscribed with the names of the kings of the fifth millenium before Christ; others were engraved with intricate designs; and a few of them

were inlaid with ivory and bright stones. One bore the picture of the temple tower; one had the oldest representation of a musical instrument known to exist. Far down the shaft was discovered a long spike of pure copper terminating in a crouching lion. Lowest down, on the undisturbed desert level, were found large numbers of pottery fragments, showing that perhaps fifteen thousand years ago a people with considerable civilization occupied that spot. An ancient Sumerian crematory was found. It was a circular chamber with an oval platform connected with a furnace. The ashes of the dead were brushed into the pit beneath the platform. The Semite dead were buried in small house-like tombs of sun-dried bricks. In these were found the pottery to contain food and drink for the spirits of the dead, the jewelry of the women, and the seal cylinders of the men. Several palaces were found, and in them small collections of clay tablets containing the business documents of the people. In one large chamber were about five thousand of the tablets in a heap. In the residential portion of the city were found very narrow winding streets lined with houses of but a single room. Many of the houses were provided with vertical drains reaching into the ground forty feet or more, and with cisterns. Frequently there had survived the oven in which the bread was baked, the mortar for pounding the grain, the images of the household gods which were supposed to drive away disease, the toys of the children, the needles and knives of the women, and many other things necessary to life in those days. A public bath was found in the residential section of the city, provided with a vertical drain beneath the floor of bitumen, a furnace for heating the water, and a cistern high up in the building. The people of Bismya were among the oldest who have left us evidences of a highly developed civilization, and the first occupants of the place, ten or fifteen thousand years ago, were as civilized as the present occupants of the surrounding desert.

Mr James Mooney was elected President of the Society for the ensuing year, and the following officers were re-elected: Vice-President, Dr John R. Swanton; Secretary, Dr Daniel Folkmar; Treasurer, Mr J. N. B. Hewitt; Councilors: Mr Felix Neumann, Dr I. M. Casanowicz, and Mr Francis LaFlesche.

DANIEL FOLKMAR, *Secretary.*

DISCUSSION AND CORRESPONDENCE

Ancient Lodge Sites on the Missouri in Nebraska

Within the last few years several papers[1] have been published by Mr R. F. Gilder of Omaha on prehistoric earth lodges in eastern Nebraska. Under the auspices of the Peabody Museum of Harvard University I have been investigating several of these lodge sites during the last three years and have covered a territory somewhat wider than that in which Mr Gilder did most of his work. In addition, several of the sites excavated were more favorable for the observation of certain features than those in which Mr Gilder worked. These facts furnish the excuse for the present notice.

The principal feature in which my conclusions differ from those of Mr Gilder, as published in 1909,[2] is in the construction of the houses, and it is to this feature that I wish to call attention at the present time. In fairness to Mr Gilder, it should be stated that he has been convinced by his own later investigations[3] of the correctness of my conclusions.

These lodge sites are now known to occur as far south as Union, Nebraska, and as far north as Walthill in the same state—a distance exceeding one hundred miles. At White Cloud, Kansas, there are sites which seem to be of the same type but which have not yet been investigated. The Museum expedition of the coming summer will excavate some of these and also some sites in northern Missouri. The type of lodge site here described has not been proved to exist east of the Missouri river, although several have been reported which are probably similar.

Of the five hundred or more known sites, all but four are situated either on the very tops of the highest bluffs or on the highest river terraces near their steep fronts. The spot chosen was usually one from which water would drain away on every side. Not a single site is known to exist more than three miles from the river bottoms, and very few more than half a mile away. The distance from the river to which they extend seems to be determined by the presence or absence of certain Pleistocene

[1] *American Anthropologist*, IX, pp. 702–719; XI, pp. 56–84. *Records of the Past*, X, pp. 249–259; XII, pp. 107–116.

[2] Excavation of Earth-lodge Ruins in Eastern Nebraska, *American Anthropologist*, 1909, XI, pp. 56–84.

[3] *Records of the Past*, XII, pp. 107–116.

gravels which are the source of all the springs of the region. Where these outcrop to a considerable distance from the river, the sites likewise so extend; and conversely where the outcrops do not occur, there are no sites. The few sites not on the ridges are near springs.

With reference to each other, these sites are much scattered. Seldom are more than two or three close together, and sites isolated a mile or two from any other occur. Usually they are strung out along the ridges a hundred or more yards apart. I have been unable to discover any traces of village grouping. Indeed, on the river terraces where definite village arrangement would be likely, they are still stretched out in a long line. This would seem to indicate that the builders were originally dwellers on the ridges and occupied the terraces only at a later date. However I have been unable so far to see any difference in culture between the sites on the bluffs and those on the terraces.

The sites themselves appear on the surface of the ground as "saucer-like" depressions which are often called "buffalo wallows" by persons living in their neighborhood, and "circles" by those who know their real nature. They vary from a few inches to more than four feet in depth below the surrounding ground level. On excavation it is found that the actual house occupied but a portion of this depression, the remainder being due to surface wash.

The actual lodge was not round, like the earth lodges of the historical tribes of the Missouri valley, but roughly rectangular or very nearly square. They measure from 35 to 40 feet to the side. The corners are somewhat rounded, but for at least 30 feet the walls are perfectly straight. In many of the houses the walls have been burned to a brick-red, so that this rectangular outline can be traced with absolute certainty. Indeed, after my experience I can trace on the ground the position of the straight walls in many sites and not miss them by more than a few inches, in spite of the rounded appearance of the depressed area.

The depth to which the original excavation of the house was carried is from three to four feet below the present depressed portion of the ground. This depression is now filled with from 15 to 20 inches of material which must have collected on the floor of the lodge while it was occupied, 9 to 15 inches representing the fallen roof, and over this 12 to 15 inches of accumulated black soil. Below the floor proper and near the walls, pits or caches were dug—some as much as six feet below the floor level. These number from two or three up to 20 in a single house, and in general are somewhat bottle-shaped. Their sides are often burned, and they are frequently filled with a mixture of charcoal, ashes, and clay. Often they

are nothing more than rubbish pits, but some of them were used for storage.

There was a principal fireplace always in the center of the floor, but there were also smaller ones elsewhere. Indeed it seems that at one time or another nearly every part of the floor was so used. There does not seem to have been any excavation for the fireplace as is usual in the lodges of the Missouri river tribes.

A feature of special interest is the entrance passage. This occurs in only a portion of the lodges, the others apparently having been entered by a ladder. Where such an entrance occurs it is quite long, sometimes extending as far as 20 to 25 feet beyond the edge of the house. Its direction is not constant, but it seems to be determined by the prevailing winds and the slope of the hill. None open to the north or northwest. It has another peculiarity in that it is not inclined, as are the passageways in the lodges of the historical tribes, but is almost level. It is continued to such a distance that the natural slope of the hill will bring it to the ground level. The houses are not orientated.

The culture has been sufficiently described for the present in the papers of Mr Gilder, and only one or two points will be noted here. Of the food material, there are considerable quantities of charred grain and nuts, abundant bones of rodents and deer, but, except as implements, the bones of the bison are quite rare—a rather unusual feature for a Plains culture. The pottery shows a distinct development from north to south which will be described in a later paper. A few pieces were found which were definitely the result of trade—probably from the Red river region in Louisiana. There is no sign of contact with the white race.

The connection of these people with known tribes has yet to be determined, but it is certain that they were not Omaha nor Oto. On the present evidence, Catlin's theory of a Mandan origin can be regarded only as a myth. There are many reasons for believing they were not Pawnee nor Arikara.

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THE RED-PAINT PEOPLE OF MAINE

IN the *American Anthropologist* for January–March, 1913, Professor Warren K. Moorehead describes his archeological research in Maine and tells of what he calls the "Red-paint People," whose remains were discovered there. Excepting the strange remains of the cave-people of the Ozark mountains (which also were investigated by Professor Moorehead),

nothing perhaps found in the United States in recent years, he tells us, is comparable in interest with the problem of the " Red-paint People " of the lower Penobscot valley. Unless the interest connected with the "Red-paint People" depends on considerably more than the placing of red paint in deposits, and the small proportion of remains of burials, found in the graves, it is a question if Professor Moorehead has not accorded himself overmuch praise.

Mr D. I. Bushnell, Jr, in the *American Anthropologist* for October–December, 1913, takes up this question of the " Red-paint People " and points out, among other things, that the deposit of red paint with burials and artifacts is far from being a recent discovery.

Although Mr Bushnell leaves little further to be said as to the " Red-paint People," I should like to quote from my " Certain Sand Mounds of the St. Johns River, Florida,"[1] Part I, where my investigation of the Mt Royal mound, made famous by the descriptions of both the Bartrams, is detailed.

" Beginning at the margin of the base, a layer of sand, colored by admixture of powdered hematite, covered the entire mound. This layer attained a maximum thickness of seven feet on the northeastern portion of the summit-plateau and adjacent slope. The general tint of the layer was what is called crushed strawberry by dealers in ribbons, though at many points, and especially in the vicinity of relics, the sand in considerable quantity was dyed a brick red, even reaching what is termed Indian red by vendors of colors. At times streaks and local layers of highly-colored sand throughout the entire mound led to implements, pottery, etc., and while the discovery of objects in the yellow sand was not uncommon, still in the majority of cases they lay in contact with that having an artificial color. Realizing this fact, the 21 colored men in our employ worked with their hands alone in the presence of sand tinted with the red oxide, and it is doubtless owing to this that but two objects in pottery were broken by the spade during the seventeen days comprising our investigation." (Page 19.)

Next are named three mounds in which were deposits of the red oxide of iron (a list considerably increased in later explorations), and reference is made to the late Mr Andrew E. Douglass having noticed a similar use of hematite in mounds on the east coast of Florida. Attention also is called to the caves of Mentone where Dr Rivière repeatedly found objects tinted by contact with the red oxide, while Dr Verneau encountered a layer of earth artificially colored by the use of iron ore, in which bodies had been deposited.

[1] *Journal Acad. Nat. Sci. of Philadelphia*, vol. x, 1894.

As to the condition of human remains in the Mt Royal mound, we are told, "In no mound of the St Johns have human remains been found so fragmentary through the ravages of decay, and it is probable that traces of many burials have entirely disappeared. In certain cases human remains were represented by hardened sand retaining nothing but the shape. Many fragments of bones resembled moistened powder and crumbled at the touch. Beyond a few crowns of teeth no remains were saved. It is probable that an admixture of shell with the sand of the mound would have preserved the bones to a material extent." (Page 20.)

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THE MOTHER-IN-LAW TABOO

IN a paper read before the Academy of Inscriptions, Paris, on September 8, 1911, Salomon Reinach propounded a theory of the mother-in-law taboo which may be of interest to anthropologists. The paper subsequently appeared in *L'Anthropologie* (1911, pp. 649–662) and is now reprinted in the fourth volume of the author's *Cultes, Mythes et Religions* (Paris, 1912). Reinach notes that of a total of some 65 cases of avoidances between relatives recorded in Frazer's *Totemism and Exogamy*, 43 refer to the relations of son-in-law and mother-in-law. This may thus be regarded as the "typical" avoidance. The author reviews and rejects the various theories propounded to account for the origin of the custom: the theory of Frazer, who regards the custom as a safeguard against incest between the son-in-law and the mother-in-law; the theory of Lubbock, who sees in it a survival of marriage by capture; the theory of Tylor, who explains the taboo as a reaction of the wife's family against the intrusion of her husband; and the theory of Crawley, who sees in marriage a breach of a sexual taboo which, by extension, the son-in-law applies also to his mother-in-law.

Reinach's own theory rests on two postulates: the savage does not distinguish between appearance and reality (here special reference is made to the work of Lévy-Bruhl); the horror of incest is a most powerful emotion, universal in its distribution, while the responsibility for an incestuous act falls mainly on the male. We may assume that the husband's residence with his wife's people is, like maternal descent with which it is correlated, a more ancient practice than paternal descent and the wife's residence with her husband. It is to be expected that on his installation in his wife's household the husband would soon be on

terms of familiarity with her mother and presently would learn to call her "mother". The suggestion of actual blood-relationship carried by that term would not fail to react on the view taken by his mates of his marital union: if his wife's mother is his mother, incest has been committed: he has married his own sister. In order then to discourage all suspicion of incest, it is best to avoid *all* relations with one's mother-in-law, to ignore her. "Thus," concludes Reinach, "avoidance of the mother-in-law seems to me to be nothing else but an emphatic, categorical denial of the possibility of incest between brother and sister: the definitive proof that my wife is not my sister lies in the fact that I do not know, refuse to know, her mother; and that the latter professes a similar attitude toward me."

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ARROW-CHIPPING BY MEANS OF FIRE AND WATER

FOLLOWING is a quotation from a communication by Ed. Nagle, an old fur-trader of the far north of Canada, who is now in British Columbia, addressed to Mr Frederick W. Godsal of Cowley, Alberta, regarding the flaking of stone arrowpoints among the Athapascan Indians of Great Bear Lake, Mackenzie Territory:

"I am sure you have given up all hopes of hearing from me on flint arrow heads question; but I was simply trying to find out for certain how they manufactured these arrow points from the rough, and here it is. I sent to Edmonton for my note book used while on a trip to Great Bear Lake, and here are my notes: 'Flint is not chipped with stone or with metal, but with water. When an Indian wished to make an arrow head he held a piece of flint in the fire until it was very hot, then allowed a drop of water to drip from the end of a stick upon the spot to be chipped off.' The sudden cooling made the flint chip off immediately; some cunning is of course necessary in the shaping of the arrow head, but the old Indian method is the best that has been found as yet. When I wrote you previously to this it was an arrowhead made from a slate stone, which the Esquimeaux use in place of flint for boys."

ANTHROPOLOGIC MISCELLANEA

Wyoming Historical and Geological Society.—Although the Wyoming Historical and Geological Society of Wilkes-Barré, Pennsylvania, may be classed among the local scientific organizations of the country, by reason of the fact that its activities are properly restricted to a limited field, there is probably no society that is doing better work of its kind or that is covering the ground in a more intelligent and enthusiastic manner. Organized in 1858, during those troublous times when scientific endeavor was retarded rather than stimulated owing to stress of political conditions, the Wyoming Historical and Geological Society has continued its work without cessation, and during the period of its existence, extending over more than half a century, has reared a lasting monument for itself and for learning. The publications of the Society include thirteen volumes of *Proceedings and Collections* and twenty-five miscellaneous pamphlets, which are replete with valuable historical and scientific data, including papers on ethnological and archeological subjects. Its collections include 26,000 Indian artifacts, of which all but about a thousand are from the Susquehanna watershed in Pennsylvania. The library of the Society consists of 20,000 volumes not duplicated by any library in northeastern Pennsylvania; the membership numbers nearly 400 (including 207 life members), and its invested endowment funds exceeded $53,000. A special endowment fund of $1,000 provides for the publication of an annual ethnological paper, and the Coxe Publication Fund of $10,000 guarantees the annual volume of *Proceedings and Collections*. It is thus shown that the Society is in a most prosperous condition, thanks largely to the personal interest and activity of its corresponding secretary and librarian, the Reverend Horace Edwin Hayden, who has contributed unstintingly of his time and energy to the work of the Society.

In 1912 the Society published volume XII of its *Proceedings and Collections* under the Coxe Publication Fund, and volume XIII has just been issued. These two attractive volumes contain the usual share of articles of ethnological and archeological interest. In volume XII are papers by the Reverend W. M. Beauchamp on "Iroquois Pottery and Wampum" and by the Reverend Horace Edwin Hayden on "Echoes of the Massacre of Wyoming, No. 2," and Christopher Wren's "Some Indian Graves at Plymouth, Pennsylvania." Volume XIII includes Mr

Hayden's "Echoes of the Wyoming Massacre, No. 3," and "A Study of North Appalachian Indian Pottery," by Christopher Wren. These papers, of course, are in addition to numerous others of a strictly historical or geological interest, which need not be mentioned here.

Mr Beauchamp's paper, above mentioned (vol. XII, pp. 55–68, 3 pl.), published at the expense of the Augustus C. Laning History Fund, treats of two phases of material culture that are always of interest and to which the author has devoted many years of study. In the continuation of his "Echoes of the Massacre of Wyoming" (vol. XII, pp. 69–104, pl.; vol. XIII, pp. 124–130) Mr Hayden speaks with authority and presents a series of historical documents bearing on certain participants in the massacre of 1778, which thus are preserved for future students of this bloody episode in Pennsylvania history. Mr Wren's article on "Indian Graves at Plymouth" (vol. XII, pp. 129–204, 3 pl.) gives historical references to and the results of excavations in an Indian burial place. The second paper by Mr Wren, above cited (vol. XIII, pp. 131–222), describes and illustrates, with thirty plates and numerous figures, the Indian pottery of eastern Pennsylvania, northern New Jersey, and southern New York, and is an extension of the results of the studies embodied in his paper on "The Aboriginal Pottery of the Wyoming Valley Region," printed in volume IX of the *Proceedings and Collections*. The memoir is introduced with a brief account of the potteries of Palissy and Wedgwood, followed by a "Chronology of pottery and china making in Europe." A description of the Appalachian region of Pennsylvania is given, and a general account of the principal features of the aboriginal pottery of the area, including materials used, form, method of manufacture, size, thickness, decoration, uses, and age. The greater part of the work is devoted to descriptions of the plates illustrating earthenware objects, which afford an adequate conception of the character of aboriginal pottery from the area treated. The collection of Algonquian pottery in possession of the Wyoming Historical and Geological Society is said to be the finest in existence.

F. W. H.

John Brown Dunbar, an authority on the Pawnee Indians, died at Bloomfield, New Jersey, on March 12. Mr Dunbar's father, the Reverend John Dunbar, a native of Massachusetts, was sent as a missionary to the Pawnee in 1834, and settled at Bellevue, Nebraska, nine miles above the mouth of the Platte, the leading post and agency nearest the Pawnee country, where the son was born, April 3, 1841. During his

missionary labors the father learned enough of the Pawnee language to enable him, when he returned to Massachusetts for a visit in 1836, to have printed at Boston a small elementary book in the Pawnee tongue which was afterward used by the children in the missionary school. The son received his primary education from the father, spent one year at Hopkins Academy, Hadley, Massachusetts, and was graduated from Amherst in 1864. He served in the Civil War successively as private, sergeant, and lieutenant of artillery in Nims' battery, a year of the time being spent in Louisiana and nearly two years and a half in Virginia. From 1869 to 1878 he held the chair in Latin and Greek in Washburn College, Topeka, Kansas, and while here married Miss Alida Stella Cook. After leaving Topeka, Professor Dunbar served for three years as superintendent of the public schools of Deposit, New York; subsequently he filled a similar position for sixteen years at Bloomfield, New Jersey, and in 1897 became connected with the Boys' High School in Brooklyn, New York, although retaining his residence at Bloomfield. Professor Dunbar was deeply interested in philology, and in the early history and exploration of the general region of his birth. In 1872–73 he assisted Father Gailland, of St Mary's Mission, Kansas, in the preparation of a Grammar and Dictionary of the Potawatomi language, which remains unpublished. He also compiled, but not published, a brief grammar and partial vocabulary of Pawnee. Among Dunbar's published writings are the following:

The Decrease of the North American Indians. *Kansas City Review of Science and Industry*, September, 1880.

The Pawnee Indians. *Magazine of American History*, April–November, 1880; November, 1882.

The Pawnee Language. In Grinnell, G. B., *Pawnee Hero Stories and Folk Tales*.

Professor Dunbar rendered cheerful and valued aid to numerous students of American ethnology, including Brinton, Grinnell, and Shea, and to various institutions. He left a number of incomplete manuscripts which doubtless contain much information on the Pawnee, with whom he was brought into such intimate contact during his early life.

General James Grant Wilson, soldier, author, died in New York on February 1. General Wilson was born in Edinburgh, April 28, 1832, but his family settled at Poughkeepsie, N. Y., during his infancy, and in that city he spent his childhood and youth. He received an academic education and also instruction by private tutors (D.C.L., St Stephen's College, 1894; L.H.D., Hobart College, 1895), and in 1857 founded and

edited the *Chicago Record*, said to be the first magazine of art and literature published in the Northwest. Five years later he entered the army as a major in the Fifteenth Illinois Cavalry; he took an active part in Grant's Vicksburg campaign, and in 1863 became colonel of the Fourth Regiment of United States colored cavalry, serving under General N. B. Banks from 1863 to 1865, and being breveted a brigadier-general of volunteers, March 3, 1865, "for faithful and meritorious services." He resigned in the following June. From the close of the war General Wilson was engaged in literary work in New York, the product of which, covering military history, biography, and other historical topics, is voluminous. He was a leading spirit in a number of organizations having for their purpose the advancement of the interests of literature, history, and genealogical and biographical study, and took a prominent part in important movements looking to civic progress. In 1894 he was knighted by the Queen Regent of Spain for his services in having a statue of Columbus erected in Central Park, New York. General Wilson became an active member of the American Ethnological Society in 1887, and when the Society was rehabilitated in 1900 he was made its president, which office he held until shortly before his death, when he was elected honorary president.

Cornplanter Medal for Iroquois Research.—On February 28, 1914, the Cayuga County Historical Society of Auburn, New York, conferred the "Cornplanter Medal for Iroquois Research" on Mr J. N. B. Hewitt of the Bureau of American Ethnology, Washington, D. C., for his work in the field of Iroquois anthropological study. The medal is of silver, and its artistic finish represents the excellent handiwork of Tiffany and Company of New York. The Cornplanter medal was founded in 1901 largely through the efforts of Professor Frederick Starr of the University of Chicago and the public spirit of a number of his friends who aided in providing the necessary means. The administration of the Cornplanter medal for Iroquois Research was then undertaken by the Cayuga County Historical Society. Four classes of workers are eligible to receive it, namely: (*a*) Ethnologists making worthy field-study or other investigations of the Iroquois; (*b*) Historians making actual contributions to our knowledge of the Iroquois; (*c*) Artists worthily representing Iroquois life or types by brush or chisel; (*d*) Philanthropists whose efforts are based on adequate scientific study and appreciation of Iroquois needs and conditions. Those who have previously received the award of the medal are, in their order, General John S. Clark, of Auburn, N. Y.; Rev. William

M. Beauchamp of Syracuse, N. Y.; Dr David Boyle of Toronto, Canada; Hon. William P. Letchworth, and Reuben Gold Thwaites.

Frazer Fund for Social Anthropology.—It has been suggested that the completion of the Third Edition of *The Golden Bough* might give the many friends and admirers of its author, Dr James G. Frazer, a fitting occasion for offering him some token in recognition of his great services to learning. It is therefore proposed that a Frazer Fund for Social Anthropology be established to make grants to traveling students of either sex, whether connected with a university or not, with a view to their investigating problems in the culture and social organization of primitive peoples, a department of Anthropology which Dr Frazer has always been eager to promote. This proposal affords an opportunity to that wide public, both at home and abroad, whose interest has been stimulated by Dr Frazer's work, to coöperate in doing honor to a student whose reputation is world-wide and whose speculations, founded on an immense accumulation of facts, have affected the main current of thought in several important subjects. It is also proposed that, in order to secure continuity of administration, the fund be held in trust by the University of Cambridge, and that the grants from it be made by seven managers, representing the various anthropological schools of the country. All persons interested in anthropological research are invited to join the committee, of which Mr F. M. Cornford, Trinity College, Cambridge, is the secretary and treasurer. Contributions to the fund may be sent either to him or to the "Frazer Fund Account," Messrs Barclay & Co., Mortlock's Bank, Cambridge, England.

Margaret Elliott, the clan matron of the Iroquois, died on the Six Nations reserve, Ontario, on April 6, in her 95th year. Mrs Elliott was a daughter of Chief John Smoke Johnson, who was speaker of the council of the Six Nations for many years, and it is said that it was he who caused the burning of Buffalo in the War of 1812. Johnson laid the corner-stone of the Brant monument at Brantford, Ontario, in 1886, and died three weeks afterward, aged nearly 94. By the death of Margaret Elliott her tribal duties fall upon her niece, Mary Jacket Hill. Her sons J. M. W. Elliott and James Elliott, both chiefs, survive her.

THE following illustrated lectures have been announced by the University Museum, Philadelphia: February 21, Dr George Grant MacCurdy, of Yale University, "The Dawn of Art." February 28, Dr A. B. Lewis, of the Field Museum of Natural History, Chicago, "Four Years Among the Islands of the South Seas." March 7, Professor

Walton Brooks McDaniel, of the University of Pennsylvania, "Catullus and Lake Garda." March 14, Professor Masaharu Anesaki, of the Imperial University, Tokyo, "Japanese Art." March 21, Professor James H. Breasted, of the University of Chicago, "Through the Cataracts of the Nile, or Camp and Caravan in Ancient Ethiopia." March 28, Professor Breasted, "Egyptian Art."

INTENDING visitors to Madrid are informed that the Museum of Archeology and Ethnology is closed for alterations and will remain so till the end of the year or longer. The famous Sahagun manuscripts are also unavailable. The portion at the Academia de la Historia is said to have been sent to Seville for the exhibition which takes place there in the autumn. The volume belonging to the Biblioteca del Rey "has been placed in the reserve." After refusing any inspection of it, the Director now states that, as an especial favor, it might be seen twice for three hours "pues no es posible distraer para este asunto, por más tiempo el personal de la Real Biblioteca." ADELA C. BRETON

PROFESSOR GEORGE GRANT MACCURDY, of Yale University, delivered the fourth of the winter series of public lectures under the auspices of the Pennsylvania State Museum and the Harrisburg Natural History Society at Harrisburg, Pa., on January 21. He lectured on "The Antiquity of Man in the Light of Recent Discoveries." On March 10th Professor MacCurdy completed a tour of the eastern Canadian circuit where he lectured on "The Dawn of Art," by invitation of the Archæological Institute of America, at St John, Halifax, Quebec, Montreal, Ottawa, Toronto, and Hamilton. He also gave two lectures at Rutgers College on March 25 and 26, one before the New Jersey State Microscopical Society on "Primeval Man," the other before the Phi Beta Kappa Society on "The Dawn of Art."

THE CAHOKIA MOUND ASSOCIATION was organized at St Louis on March 13th, with Dr H. W. Whelpley as president. The legislative committee of the Association has recommended that a tract of not less than seventy acres be included in the limits of a proposed park surrounding the Cahokia mound group, which Congress will be asked to reserve as a national monument, but it is hoped that eventually an area of 750 acres will be reserved for the permanent preservation of this important archeological landmark.

SIR AUREL STEIN, superintendent of the frontier circle of the Archeological Survey of India, has been deputed by the government of India to resume his archeological and geographical explorations in Central

Asia and westernmost China, in continuation of the work he carried out between 1906 and 1908. For his journey to the border of Chinese Turkestan on the Pamirs he is taking on this occasion the route which leads through the Darel and Tangir territories, which have not been previously visited by a European.

THE department of anthropology of the American Museum of Natural History, New York City, has offered a course of four lectures dealing with the social and religious customs and beliefs of primitive peoples. On January 8 and 15, Dr Robert H. Lowie lectured on "Social Organization," and on January 22 and 29 Dr Pliny E. Goddard lectured on "Religious Observances" and "Religious Beliefs."

PROFESSOR V. GIUFFRIDA-RUGGERI has been elected a corresponding member of the Société Imperiale des Amis d'Histoire Naturelle, d'Anthropologie et d'Ethnographie of Moscow. Professor Giuffrida-Ruggeri has recently been appointed professor of ethnology in the Real Instituto Orientale of Naples, under the Royal Ministry of Colonies, the only colonial institute in Italy.

MRS HUNTINGTON WILSON has established for the year 1914 a lectureship in eugenics, and has placed a fund of $2,500 for the purpose in the care of the Eugenics Record Office at Cold Spring Harbor, N. Y. Mr A. E. Hamilton, of Clark University, has been appointed to this lectureship and will be available for colleges, societies, and clubs.

ALPHONSE BERTILLON, founder of the system of identifying criminals by means of anthropometry, died in Paris on February 13 at the age of 60 years. He added luster to a name already made famous by his father, a noted ethnologist and demographer, associated with Broca in the founding of the Paris Society of Anthropology.

IT is stated that the Maharaja Scindia of Gwalior is giving special attention to the archeological relics and treasures in his state, and is taking steps to create an archeological department in Gwalior. In furtherance of this object he has sought the advice and cooperation of the director-general of archeology in India.

A NEW scientific monthly, devoted to the growth of the human child and adolescent, has appeared at Saint-Raphael (Var), France, under the name *Croissance*. It is edited by Dr Paul Godin, well known through his extensive researches on human growth and development. The yearly subscription is six francs.

THE death of Dr Edward Singleton Holden, astronomer and librarian of the United States Naval Academy at Annapolis, on March 15, recalls

to students of Maya hieroglyphs his "Studies in Central American Picture-writing" published in the First Annual Report of the Bureau of Ethnology in 1881.

THE Société Imperiale des Amis des Sciences Naturelles, d'Anthropologie et d'Ethnographie, of Moscow, celebrated its semicentenary October 15–28, and on August 27 held a fête in honor of the seventieth anniversary of the birth of its president, Professor Dmitrii Nicolaïevitch Anoutchine.

ADOLPH FRANCIS ALPHONSE BANDELIER, distinguished authority on Spanish American archeology and early history, and lecturer in Columbia University, died in Seville, Spain, on March 19, aged seventy-four years. An extended account of Bandelier's life and activities will appear in the next issue.

DR HENRY FAIRFIELD OSBORN of the American Museum of Natural History and Columbia University, New York, has delivered the Hitchcock lectures for 1914 at the University of California, his subject being "Men of the Old Stone Age in Europe: their Environment, Life, and Art."

DR A. B. LEWIS, assistant curator of African and Melanesian ethnology in the Field Museum of Natural History, Chicago, delivered an address at the Museum, November 22, on The Joseph N. Field South Pacific Expedition.

THE Société Paléontologique et Archéologique de l'Arrondissement Judiciaire de Charleroy, France, celebrated its fiftieth anniversary on October 5, when an archeological excursion was made by its members and guests.

THE Tenth Session of the Congrès Préhistorique de France will be held at Aurillac (Cantal), from August 23d to 29th, under the presidency of M. Pagès-Allary. The general secretary is Dr Marcel Baudouin, rue Linnè 21, Paris.

DR Albert N. Gilbertson will have charge of the instruction in anthropology at the University of Minnesota in the absence of Dr Jenks, who is traveling in Europe and Africa.

RECORDS OF THE PAST, volume XII, part v, consists of a table of contents, an index of the illustrations, and a general index of the first twelve volumes of the series.

A LECTURE was delivered on October 7 at the University of Birmingham by Professor Arthur Keith, F.R.S., on "The Present Problems Relating to the Antiquity of Man."

THE Imperial Society of the Friends of Natural History, Anthropology, and Ethnology, of Moscow, has elected Professor W. M. Davis to permanent membership.

PROFESSOR GEORGE GRANT MACCURDY of Yale University has been elected a corresponding member of the Numismatic and Antiquarian Society of Philadelphia.

MR F. W. HODGE, of the Bureau of American Ethnology, has been elected an honorary member of the Sociedad Científica Antonio Alzate of the City of Mexico.

DR CLARK WISSLER has been elected vice-president of the Section of Anthropology and Psychology of the New York Academy of Sciences for the ensuing year.

THE old Château at Les Eyzies (Dordogne) has been purchased by the French Government and will be converted into a museum of prehistoric archeology.

DR J. WALTER FEWKES, of the Bureau of American Ethnology, has been elected a member of the National Academy of Sciences.

THE Vienna Prehistoric Society was recently founded with Professor Moritz Hoernes, of the University of Vienna, as its president.

THE hundredth anniversary of the foundation of the Indian Museum, Calcutta, is to be celebrated next February.

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